

HAWAI'I KALIHI NU'U residential design for the samoan way of life

Claire Therese Rohlinger
May 2008

Submitted towards the fulfillment of the requirements for the DArch Degree.
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We certify that we have read this DArch Project and that, in our opinion, it is satisfactory in scope and quality as a DArch Project for the degree of Doctor of Architecture in the School of Architecture, University of Hawai'i at Mānoa.

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ACKNOWLEDGMENTS

Thank you to my DArch committee for their belief in and continued support of this project. Thank you to the Architecture Ladies – Tanya, Krystle, Deirdre and Trish. For without having shared this educational experience with all of you, it would not have been nearly as meaningful or fun. Thank you to my family and friends who provided moral support and understanding throughout all of these years devoted to school. Thank you to my kitties – Lucky, Tigger, Kona and Crash – who are family to me and sat many a late night on my lap in silent support of the effort. Lastly, thank you Eric. Your endless encouragement made this possible.

ABSTRACT

Hawai'i is a place with great ethnic diversity. This diversity is recognized and celebrated in many aspects of life in Hawai'i but it is not reflected in the affordable housing for low-income families. These ethnicities have unmet cultural values and family needs resulting in the decline of culture and community. This DArch project explores the needs of the Samoan culture and their "way of life" called *Fa'a Samoa*. The resulting design is a mixed-income residential development in Honolulu taking into account their cultural background and social needs. However, the residence is not limited to Samoan tenants, but will be preferred by those who desire to live a communal lifestyle. The project is an example of the cultural considerations in design and aims to perpetuate culture rather than homogeny.

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GLOSSARY OF SAMOAN WORDS

'aiga	extended family or household
ali'i	chief
'au 'aiga	household
'ava	kava
fa'a Samoa	Samoa way of life
fa'aaloalo	respect and courteous conduct
fa'atoaga	garden
failauga	orator
faiva	craft
fale	house
fale lalaga	weaving house
fale tatau	meeting house
fale tele	guest house
faletua	wife of chief
malae	sacred ceremonial area at center of a village
manaia	male counterpart to the ceremonial maiden or hostess
maota	high chief's guest house
matai	chief
nu'u	village
ta'alo	play
tama'ita'i	unmarried women
tānoa	kava bowl
taulele'a	untitled men
taupou	ceremonial maiden or hostess
toga	fine-mats
tulafale	orator
tunoa	cooking house

1 INTRODUCTION

OAHU'S ETHNIC DIVERSITY

O'ahu is the third largest island of the eight main Hawaiian Islands and is known as the "Gathering Place." This second name suits the island, as it is the most populated island in the chain with approximately 75% of the state's resident population. The population continues to rise as families grow. In 2005, Honolulu's population surpassed 900,000 reaching 905,266, which is up from the 2000 Census of 875,277.¹ It is projected that by the year 2010, Honolulu County's population will be 929,200; by 2015, 964,800; by 2020, 999,400 and by 2025, 1,029,800; with Honolulu County still maintaining 70.5% of the state's population in 2025.² With all of these people, it is not surprising that Hawai'i is a place with great ethnic diversity. Honolulu is the culmination of this diversity being the largest city in Hawai'i. Ethnically, Asians make up 46.6% of the population, 22.9% are Whites, 8.5% are Native Hawaiian and Other Pacific Islander, 3.0% are Black or African American and 0.3% are American Indian or Alaska Native.³ This diversity is recognized and celebrated in many aspects of life in Hawai'i but it is not reflected in the affordable housing for low-income families. These ethnicities have unmet cultural values and family needs resultant in the decline of culture and community.

HOUSING COSTS IN HONOLULU

In terms of housing costs, Hawai'i is a difficult place to live for most of its population. As more people settle in Hawai'i and existing families grow, the demand for housing increases. This is true for anywhere, but Hawai'i is different in that the housing costs are extremely high compared to the rest of the nation. Hawaii's land is limited being an island state, population continues to increase and Hawai'i is a destination location – all of which drive up the cost of housing making it difficult for residents to own a home. Many people simply cannot afford to own a home or even pay the current rental rates. A recent statistic presented at the 2007 Housing Hawai'i Fall Conference states, "in order to

¹ "O'ahu population hits 900,000," *Pacific Business News*, March 16, 2006,

http://www.bizjournals.com/pacific/stories/2006/03/13/daily42.html?from_rss=1 (accessed October 9, 2007).

² Enterprise Honolulu, "Projected Population in Honolulu, O'ahu, Hawaii," Enterprise Honolulu, <http://www.enterprisehonolulu.com/html/display.cfm?sid=180> (accessed October 9, 2007).

³ U.S. Bureau of the Census, "State & County QuickFacts: Honolulu County, Hawai'i," <http://quickfacts.census.gov/qfd/states/15/15003.html> (accessed October 29, 2007).

afford to rent a two-bedroom apartment in Honolulu one must earn \$24.60 per hour in order to pay the fair market rent of \$1,279.00 per month.”⁴

As Hawaii’s cost of living is an obstacle for people who make a decent wage, the difficulties of finding appropriate housing for those who have little to no income are significantly increased. Renting a home becomes impossible for minimum wage workers earning \$7.25 an hour, even if both parents of a family are employed at minimum wage. Many turn to affordable housing as their last option before becoming homeless. “A glaring statistic is that Hawai’i currently has a shortage of 9,739 rental units which are affordable to extremely low income households (those at 30% or below the area median income)”.⁵ As it is limited, those who qualify and are selected from the long waiting list feel fortunate to have any housing option. Currently, the waiting list for the City and County of Honolulu’s Section 8 rent subsidy program has grown to 10,000 applicants, all hoping to be next in line to receive affordable housing.

Affordable housing recipients in Honolulu are grateful for the housing but still; these living arrangements are far from ideal. Many of the affordable housing developments are old and deteriorated and are located in crime-ridden neighborhoods. It is hard to live when safety is a constant concern, particularly when trying to raise a family. Peter Marcus, an urban planner, states, “all housing should be provided with the particular needs of its occupants in mind, so that such housing will provide homes, not just shelters.”⁶ This statement seems like an obvious concept yet Honolulu’s public housing is more characteristic of shelter than homes.

PROJECT INTRODUCTION

This DArch project explores an alternative to the existing affordable housing options currently available in Honolulu in search of solutions that meet the cultural and physical needs of its diverse low-income population. In this study, Samoans were selected as the client for their unique “way of life” called *Fa’a Samoa*. This lifestyle is entirely public and communal and raises the question of how to provide housing in Honolulu that considers

⁴ Excellence to Affordable Housing (EAH), “Housing Hawai’i Fall Conference,” EAH, <http://www.eahhousing.org/display.asp?catid=4,17&pageid=146> (accessed November 28, 2007).

⁵ EAH, “Housing Hawai’i Fall Conference.”

⁶ Judith Modell, “(Not) In My Back Yard: Housing the Homeless in Hawai’i,” in *Home in the Islands: Housing and Social Change in the Pacific* (Honolulu: University of Hawai’i Press, 1997), 198.

their cultural background and social needs while providing a secure environment that is required in an urban Western city. The resulting design is a mixed-income residential development that meets this objective and provides as an example of the cultural considerations in design. While the project is designed with the Samoan culture in mind, it is ideal for anyone who desires a communal way of life.

PRESENTATION FORMAT

Chapter 2 defines affordable housing and presents three of the major affordable housing programs offered by the U.S. Department of Housing and Urban Development (HUD). The third chapter presents the demographics of Honolulu's affordable housing and identifies the existing social and physical environment issues.

Chapter 4 takes a closer look at the selected client group to be served and discusses their cultural values and housing needs. The selected clients are Samoans who currently reside in affordable housing in Honolulu. This cultural group is described in terms of their socioeconomic makeup, geographic location, cultural lifestyle and lifestyle problems/cultural conflicts they are experiencing in Honolulu's affordable housing developments.

Following the client group is chapter 5, which identifies affordable housing criteria and building code requirements at the state and local government levels. Chapter 6 presents housing typology options and illustrates the design theory concepts of Defensible Space and Community of Interest by architect and city planner Oscar Newman. Newman is known internationally for his work in community planning, assisted housing, crime prevention and racial integration.

Chapter 7 presents three case studies. The first one portrays the current negative living conditions at one of Honolulu's public housing projects. The second case study is an example of affordable housing designed considering the cultural values of the tenants. It is also an example of a design that attempts to prevent criminal activity in a neighborhood that is crime-ridden. The final case study is a mixed-income housing development that also aims to reduce crime in its neighborhood.

Following the case studies are the preliminary design assumptions derived from the research that will assist the design of a mixed-income housing development that meets the needs of Samoan residents in Honolulu. Chapter 8 also includes program development and site selection for the project. Lastly, chapter 9 presents the design of the residential project.

2 WHAT IS AFFORDABLE HOUSING?

DEFINITION OF AFFORDABLE HOUSING

Affordable housing is a dwelling where the total housing costs are affordable to its residents. Typically, it is associated with a lower socio-economic class who is in need of housing assistance. In Hawai'i, affordable housing seems to take on another meaning and applies to multiple socio-economic classes due to the extremely high housing costs. The question then becomes what is affordable?

Affordability is often defined by public agencies in terms of area median income (AMI). AMI is published by the U.S. Department of Housing and Urban Development (HUD) for every county and metropolitan area and is the most common benchmark to determine eligibility for federal housing programs. Households break down into the following categories based on their earnings: between 120 and 80 percent AMI are considered "moderate-income"; below 80 percent AMI, "low-income"; below 50 percent AMI, "very low-income"; and below 30 percent AMI, "extremely low-income."⁷ The generally accepted standard for affordability is for a household to pay no more than 30 percent of its monthly net household income, income after taxes, for its monthly housing costs.⁸ "Housing is usually considered 'affordable' if it would meet this 30 percent standard for families considered 'low-income,' meaning they earn below 80 percent of the area median income (AMI)."⁹ According to HUD, in Honolulu County, this translates into a family of four being considered low-income if its income is below \$22,350.¹⁰

Families are considered cost burdened if they pay more than 30 percent of their income for housing and may have difficulty affording necessities such as food, clothing, transportation and medical care. HUD estimates that 12 million households, both renters

⁷ PolicyLink, "Affordable Housing Development 101," PolicyLink, <http://www.policylink.org/EDTK/AH101/default.html> (accessed November 28, 2007).

⁸ U.S. Department of Housing and Urban Development, "Community Planning & Development," under "Affordable Housing," <http://www.hud.gov/offices/cpd/affordablehousing/> (accessed November 7, 2007).

⁹ PolicyLink, "Affordable Housing Development 101."

¹⁰ Affordable Housing Resource Center, "Low-Income Housing Tax Credit: HUD Income Limits FY 2007," Novogradac & Company LLP, http://www.novoco.com/low_income_housing/resource_files/income_limits/2007_section8limits.pdf (accessed November 28, 2007).

and homeowners, currently pay more than 50 percent of their annual net incomes for housing, and a family with one full-time worker earning the minimum wage cannot afford the local fair-market rent for a two-bedroom apartment anywhere in the United States.¹¹

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD) PROGRAMS

HUD is a Cabinet-level agency of the United States government founded in 1965. It began in the House and Home Financing Agency to develop and implement policy on housing and cities. Since then, it has significantly scaled back its efforts in urban development function and now focuses primarily on housing.¹² “HUD’s mission is to increase homeownership, support community development and increase access to affordable housing free from discrimination.”¹³

HUD’s promotion of decent affordable housing is achieved through many different housing assistance programs that provide rental assistance to more than 4 million households.¹⁴ Three major rental assistance programs are under the administrative Office of Public and Indian Housing: Privately owned subsidized housing, Housing Choice Voucher Program (Section 8) and Public Housing. Privately owned subsidized housing is project-based where the government gives subsidies to housing unit owners. In return for the subsidies, the owner must rent the units at an affordable rate to lower income families. The Housing Choice Voucher Program is tenant-based. Participants receive subsidies from the government to help pay for part of the housing of their choice as long as it meets HUD’s minimum requirement standards. Public housing is government owned and operated housing facilities for lower income households.¹⁵

Public housing agencies or PHAs are eligible to take part in the project-based voucher program. This program falls under the legal authority of Section 8 and provides rental

¹¹ U.S. Department of Housing and Urban Development, “Community Planning & Development,” under “Affordable Housing.”

¹² U.S. Department of Housing and Urban Development, “Homes & Communities,” under “HUD’s History,” <http://www.hud.gov/library/bookshelf12/hudhistory.cfm> (accessed November 29, 2007).

¹³ U.S. Department of Housing and Urban Development, “Homes & Communities,” under “Mission and History,” <http://www.hud.gov/library/bookshelf12/hudmission.cfm> (accessed November 27, 2007).

¹⁴ U.S. Department of Housing and Urban Development, “HUD Strategic Plan FY 2006 – FY 2011,” http://www.hud.gov/offices/cfo/reports/hud_strat_plan_2006-2011.pdf (accessed November 27, 2007) 16.

¹⁵ U.S. Department of Housing and Urban Development, “Renting,” <http://www.hud.gov/renting/index.cfm> (accessed November 27, 2007).

assistance for qualifying families who want to live in specific housing developments or units. The key features of the program include the following:

- A PHA may use up to 20 percent of the PHA's available voucher funding for project-based assistance.
- A PHA may provide project-based assistance for existing housing that does not need rehabilitation, as well as for newly constructed or rehabilitated housing.
- After one year of assistance, a family may move from a project-based voucher unit. The family may switch to the PHA's tenant-based voucher program when the next voucher is available, or to another comparable program if such a program is offered.
- Except for units designated for families that are elderly, disabled, or receiving supportive services, no more than 25 percent of units in a multifamily building may have project-based voucher assistance.
- The PHA may enter into a Housing Assistance Payment (HAP) contract with an owner for a term of up to 10 years. However, the PHA's contractual commitment is subject to availability of appropriated funds. The renewal term may not exceed 5 years.
- At the end of the contract term, the PHA may extend the Housing Assistance Payment (HAP) contract with an owner for a period appropriate to achieve long-term affordability or to expand housing opportunities. Extensions are subject to availability of appropriated funds.¹⁶

PHAs also facilitate the Housing Choice Voucher or Section 8 Program where the eligible tenants have more freedom in housing selection than if they were being placed in public housing. They are allowed to select a housing unit in the private market given that it meets HUD's standards.¹⁷ This program is HUD's largest program that currently serves 1.8 million low-income families.¹⁸ The eligible participants of this program are limited to:

¹⁶ U.S. Department of Housing and Urban Development, "Programs of HUD: Major Mortgage, Grant, Assistance, and Regulatory Programs, 2006," <http://www.huduser.org/resources/hudprgs/ProgOfHUD06.pdf> (accessed November 29, 2007), 79.

¹⁷ U.S. Department of Housing and Urban Development, "Public & Indian Housing," under "Housing Choice Vouchers Fact Sheet," http://www.hud.gov/offices/pih/programs/hcv/about/fact_sheet.cfm (accessed November 27, 2007).

¹⁸ U.S. Department of Housing and Urban Development, "HUD Strategic Plan FY 2006 – FY 2011," 16.

- Very low-income families;
- Low-income families previously assisted under the public housing, Section 23, or Section 8 project-based housing programs;
- Low-income families that are nonpurchasing tenants of certain homeownership programs;
- Low-income tenants displaced from certain Section 221 and 236 projects; or
- Low-income families that meet PHA-specified eligibility criteria (see Section 8(o)(4)).¹⁹

The PHA has a set payment standard for the subsidy amount that ranges between 90 percent and 110 percent of the fair market rent ensuring that the rent payment to the owner is always comparable to the rent of the other unassisted units. The tenants must pay the remaining balance of the rent based on their monthly adjusted income with a maximum initial rent burden of 40 percent of their monthly adjusted income when they first participate in the program in a particular unit.²⁰ As defined by HUD, adjusted income is used to determine total tenant payment (TTP), which is a measure of a household's ability to pay housing costs.²¹

The voucher program also outlines provisions for tenant and owner responsibility. Tenants are traditionally screened by owners, but the PHAs may also screen the applicants. Also, PHAs have can refuse to work with owners who do not abide by the requirements related to drugs and crime. Owners must agree to evict tenants if they are involved in drug-related or violent criminal activity, or for any other activity that "threatens the health, safety or right of peaceful enjoyment of the premises of tenants, PHA employees or owner employees, or the residences of neighbors."²²

¹⁹ U.S. Department of Housing and Urban Development, "Programs of HUD: Major Mortgage, Grant, Assistance, and Regulatory Programs, 2006," 75.

²⁰ U.S. Department of Housing and Urban Development, "Programs of HUD: Major Mortgage, Grant, Assistance, and Regulatory Programs, 2006," 75.

²¹ U.S. Department of Housing and Urban Development, "Calculating Adjusted Income," under "Community Planning & Development," <http://www.hud.gov/offices/cpd/affordablehousing/training/web/calculator/adjustedincome/> (accessed December 15, 2007).

²² U.S. Department of Housing and Urban Development, "Programs of HUD: Major Mortgage, Grant, Assistance, and Regulatory Programs, 2006," 76.

Public housing was established to benefit eligible low-income families, the elderly and persons with disabilities with decent and safe rental housing. Public housing includes all building types from single family homes to high-rise units. Currently, there are approximately 1.3 million households living in public housing units that are managed by 3,300 local housing agencies.²³ HUD provides annual subsidies to PHAs for the operation and management of public housing. These operating funds are used for costs including administration, routine maintenance, anti-crime and anti-drug activities, resident participation in management, insurance costs and energy costs. Capital funds are issued to the PHAs for capital and management activities that include development, financing, and modernization of public housing projects; vacancy reduction; building maintenance needs; establishing computer centers in and around public housing; resident relocation; tenant empowerment and economic self-sufficiency programs; safety and security improvements and homeownership activities.²⁴

²³ U.S. Department of Housing and Urban Development, "Renting," under "HUD's Public Housing Program," <http://www.hud.gov/renting/phprog.cfm> (accessed November 27, 2007).

²⁴ U.S. Department of Housing and Urban Development, "Programs of HUD: Major Mortgage, Grant, Assistance, and Regulatory Programs, 2006," 80-81.

3 HONOLULU'S AFFORDABLE HOUSING

HAWAII'S HOUSING CRISIS

Lack of affordable housing has become a significant problem in Hawai'i. It is estimated in order to provide for the households with less than eighty percent of median income that 44,190 new housing units, 32,580 of which for O'ahu, will be needed during the 2005-2009 period statewide. This estimate only provides for the current demand. Another 21,890 units are needed statewide, 15,590 of which for O'ahu, for anticipated new household formation.²⁵ Currently, the waiting period for HPHA-administered vouchers is about 2 years and applications for new vouchers are not being accepted due to the large number of families already on the waiting list.²⁶ Of the more than 400,000 households who do have government-assisted housing, thirty-two percent of them pay more than thirty percent of their income for their housing.²⁷ The need for additional affordable housing units at rates that meet the government's standards is clear.

In 2006, the Joint Legislative Housing and Homeless Task Force of the Hawai'i State Legislature was established by Act 196. This legislative act of Session Laws of Hawai'i 2005 (the "Omnibus Affordable Housing Act"), addresses Hawaii's housing and homelessness crisis with measurable goals. However, it was felt that a Task Force could develop more immediate solutions that could be implemented quickly to help ease Hawaii's housing shortage and the needs of the homeless. When meeting with the City and County of Honolulu, it was difficult to determine how the State could help them in their affordable housing efforts because the city has no program, plan or policy in place for affordable housing. In addition, the city was not forthcoming with information for the Task Force. The city did report that it has an administrative rule to require residential developers seeking zoning changes to provide thirty percent of their units for affordable housing. However, this policy has not been enforced for the last six years because in 1999, the city

²⁵ Housing and Community Development Corporation of Hawai'i (HCDCH), *State of Hawai'i Consolidated Plan for Program Years July 1, 2005 – June 30, 2010*, 2004, 36.

²⁶ Hawai'i Public Housing Authority, "FAQs: Section 8 Housing Choice Voucher Program, State of Hawai'i, <http://www.hcdch.hawaii.gov/faqs/section8.html> (accessed November 30, 2007).

²⁷ SMS Research & Marketing Services, Inc., *Hawai'i Housing Policy Study, 2003* (Honolulu: SMS, 2003), Table IV-A-7 at IV-B-9.

council passed a resolution calling for a suspension on affordable housing restrictions imposed on developers.²⁸

In addition to meeting with county officials, developers and the public, the Task Force visited various public housing projects across the state. They found that some of the public housing was in “dire straits,” but they also found that innovative methods were being implemented through the private sector, including for-profit and nonprofit organizations and developers.²⁹

INVENTORY OF PUBLIC HOUSING UNITS

Inventory of the public housing units on O'ahu indicate that there are 4,145 federal units and 750 state units.³⁰ Task Force site visits revealed that many units managed by the Housing and Community Development Corporation of Hawai'i (HCDCH) are vacant and most of them for substantial periods of time. For example, the vacancy rate at two Honolulu projects, Puahala Homes and Kūhiō Park Terrace (KPT), are 22 and 12 percent, respectively. Their findings were that privately developed and managed housing projects filled their vacant units within weeks and some within twenty-four hours compared to the timeframe of up to six months turnover that occurs at HCDCH projects.³¹ Inventory of the low-income rental housing units show that the State operates 837 units on O'ahu and 174 HUD Section 8 units statewide. In the private sector, there are an additional 5,057 rental units funded by various rental assistance programs. In addition, HCDCH has 854 rental units in design or under construction for households at or below the eighty percent of the median family income.³²

PHYSICAL CONDITION OF PUBLIC HOUSING UNITS

In September 2003, IBM Business Consulting Services and Building Inspections Service, Inc. (BISCO) conducted a physical needs assessment (PNA) on 65 federal public housing properties owned by HCDCH. Major problems that they identified include: deterioration of interior and exterior walls; rusting and corroded building metal components and

²⁸ Hawai'i State Legislature, *Report of the Joint Legislative Housing and Homeless Task Force*, Pursuant to Act 196, Session Laws of Hawai'i 2005, submitted by Senator Ron Menor and Representative Michael Puamamo Kahikina, 2006, 1,11.

²⁹ Hawai'i State Legislature, *Report of the Joint Legislative Housing and Homeless Task Force*, 26.

³⁰ Housing and Community Development Corporation of Hawai'i (HCDCH), *HCDCH Inventory as of March 2005*, 2005.

³¹ Hawai'i State Legislature, *Report of the Joint Legislative Housing and Homeless Task Force*, 29.

³² Hawai'i State Legislature, *Report of the Joint Legislative Housing and Homeless Task Force*, 32-33.

appliances; insect infestation and termite damage; and difficulties in repairing doors and windows due to use of non-standard components and sizes.³³ These buildings were also subject to HUD evaluations and in 2004 received a score of less than the required sixty percent making it a “troubled PHA” (public housing agency). As a result, HCDCH was required to remedy its deficiencies, which it did enough to receive a passing score the following year. It still had outstanding issues at that time and the HUD Honolulu Field Office continued to work with them on an improvement plan.³⁴ In general, the Task Force found that the State’s public housing projects are in need of substantial repair as most of the projects are over thirty years old. Hundreds of millions of dollars are needed to keep these housing projects habitable leading to the Task Force’s recommendation that “the State must explore private ownership and management of these projects, rehabilitation into mixed-use and mixed-income projects, and public-private partnerships.”³⁵

DEMOGRAPHICS OF SECTION 8 TENANTS

According to the 2003 Hawai‘i Housing Policy Study, HUD reported that the total number of Section 8 Housing Choice Voucher Program vouchers being used in the state of Hawai‘i is about 11,500, but the total potential number of new Section 8 participants is 38,000 households. In Honolulu, this breaks down to 7,782 current households using the vouchers and 26,265 potential new households.³⁶

Of the total current participants in the state, Pacific Islanders make up the largest percentage at 42 percent. Native Hawaiians or Part-Native Hawaiian represent 34.5 percent and Samoans at 7.5 percent of that total. Guamanians or Chamorros make up only 5 households and no other Pacific Islanders groups are known to be participating in the program. Following the Pacific Islanders in participant makeup are 25.3 percent Caucasians; 15% Other; 6.6 percent Filipino; 5 percent Mixed, not Hawaiian; 3.5 percent Chinese; 1.4 percent Japanese; 1 percent American Indian or Alaska Native; 0.2 Don’t know; and 0.1 Korean. In the City and County of Honolulu, the numbers are representative of the overall state demographics. Pacific Islanders as a whole make up 45 percent with Native Hawaiians or Part-Native Hawaiians at 33.3 percent and Samoans at 11.7 percent. Following the Pacific Islanders are 21.4 percent Caucasians; 19.2

³³ IBM/BISCO, *HCDCH Physical Needs Assessment*, 2003.

³⁴ Hawai‘i State Legislature, *Report of the Joint Legislative Housing and Homeless Task Force*, 31.

³⁵ Hawai‘i State Legislature, *Report of the Joint Legislative Housing and Homeless Task Force*, 49.

³⁶ SMS Research & Marketing Services, Inc., *Hawai‘i Housing Policy Study, 2003*, Section VIII A-3-4.

percent Other; 6.6 percent Filipino; 4.6 percent Chinese; and 3.1 percent Mixed, not Hawaiian.³⁷

In terms of income, of all the participating Section 8 households, about 31 percent make between \$15,000 and \$24,999 annually and 24 percent make less than \$15,000 annually. All of the participants are renters as is required by this particular program. The majority of the households live in two or three bedroom multiplex units with one bathroom. These households are paying between \$500 and \$1,400 in rent per month and over 90 percent have lived in their current units for less than ten years. Sixty percent of that 90 percent have been in their units for less than three years.³⁸ Despite the intention of the program benefit, which is the opportunity for permanent, long-term and affordable housing, there is high turnover of housing units amongst Section 8 tenants.³⁹

In the Housing Impact Section 8 Housing survey completed as part of the Hawai'i Housing Policy Study, current participants were asked questions regarding their current living conditions and their preferred living conditions. When asked if the home is large enough, 22 percent said that it is not large enough. In terms of the crowding ratio or persons per room, 45 percent have more than one person per room. Considering the physical condition of their homes, the tenants were evenly divided between satisfied and unsatisfied. In terms of household type, 7.3 percent have 3+ generations living together, 45.5 percent have 2 generation households, 30 percent 1 generation, 8.2 percent single tenants and the rest are a combination of non-related and related households. Of all these households, just over half plan to move in the next two years and 15 percent are unsure if they will need to move or not. Most of those planning on moving will do so within the year. If given a choice, over 80 percent of the tenants prefer to live in a single family home with 35.7 percent needing four or more bedrooms, 29.5 percent needing three bedrooms, 28.5 percent needing two bedrooms and 6.3 percent needing a one bedroom or studio. Sixty percent require two bathrooms 30 percent, one bathroom; 6.3 percent, three bathrooms; and 4.5 percent, four or more bathrooms.⁴⁰

³⁷ SMS Research & Marketing Services, Inc., *Hawai'i Housing Policy Study, 2003*, Section VIII A-18.

³⁸ SMS Research & Marketing Services, Inc., *Hawai'i Housing Policy Study, 2003*, Section VIII A-6-7.

³⁹ U.S. Department of Health & Human Services, "Using the Section 8 Voucher Program for Rental Housing," <http://www.os.dhhs.gov/ocr/sec8.html> (accessed December 15, 2007).

⁴⁰ SMS Research & Marketing Services, Inc., *Hawai'i Housing Policy Study, 2003*, Section VIII A-8-10.

PREVAILING ISSUES IN AFFORDABLE HOUSING DEVELOPMENTS

Affordable housing provides a roof and four walls to protect families in need. However, a home with four walls is not always what a family needs. Across cultures, different housing conditions exist that are a direct reflection of their cultural values and way of living and they do not always align with the Western idea of a house. It is a reality that many different cultural groups live in affordable housing, yet the design of affordable housing is a one size fits all approach. Quite often, migrants with limited incomes have to cope with this housing that is made available to them because they do not have the option of building their own homes. This causes difficulties for them because the buildings are designed for households with different characteristics and social priorities than those of the immigrant families.⁴¹

Housing in Hawai'i, in general, is smaller than U.S. Mainland housing due to less availability of land and higher construction costs. A smaller home is often viewed as a small price to pay in order to live in Hawai'i. However, for some families smaller unit sizes are a real hardship. In Hawai'i, multigenerational family households are common. Children often live with their parents beyond their high school years. Some decide to stay at home through college and even into married life while they try to save money to buy their own home. Others build additions on to existing parents' homes to make room for starting their own families. As the grandparents age, they continue to live with their children or move back in with them as the roles reverse and they are now the ones who need to be cared for.

In addition to extended families living together, some Pacific Island cultures have a tradition of hosting visiting relatives. This does not seem all that unlike Westerners, except for a few major differences. For example, kin visit one another frequently and they may stay an indeterminate amount of time. The hosts are expected to provide them with food and shelter for as long as the guests want or need it. With housing being too small as it is for these larger families, they cannot properly host visiting relatives, which brings them shame in their culture and the possibility of ruining family relationships completely.

⁴¹ Jan Rensel, "Introduction," in *Home in the Islands: Housing and Social Change in the Pacific* (Honolulu: University of Hawai'i Press, 1997), 22.

When these families move to Honolulu or continue to reside there, it is difficult to find housing, much less affordable housing, suitable for such large family groups.⁴²

Social priorities are also a differing aspect when comparing Pacific Island culture to Western culture. Community is often emphasized more than privacy and this is reflected in their idea of housing. Housing is much more than shelter; it provides a home within a community. In the book, *Housing, Culture, and Design*, Chambers and Low, both anthropologists, define housing as “those physical structures that shelter people in the pursuit of their private lives.”⁴³ In Pacific Islands’ housing, however, the importance of community sometimes inverts notions of public and private.⁴⁴

Hawaiian cultural values concerning social relationships emphasize the importance of belonging and *aloha*, or generosity towards one another. The concept of *‘ohana*, or family, also has roots in Hawaiian tradition and continues to have ideological and practical implications for housing policy in the state of Hawai‘i.⁴⁵ In *Nānā I Ke Kumu (Look to the Source)*, a book of Hawaiian customs and beliefs, the *‘ohana* is described as not just immediate family but a composition of people brought together by ties of love and loyalty, duty and obligation. Members of an *‘ohana* may or may not be blood related; they are related by the benefit of sharing sustenance and support. The definition suggests a permeability of household boundaries and an expansion of the meaning of family to be a community, not just those living with you. The *‘ohana* concept reinforces that a home is more than having a roof over one’s head and residing is more than a matter of having a place in which to eat and sleep.⁴⁶ The *‘ohana* strategy expresses that a place in community is integral to the idea of home and emphasizes “inclusivity, a marked contrast with the exclusivity more often characteristic of modern urban housing.”⁴⁷ Affordable housing options in Hawai‘i do not reflect this spirit of community shared by Pacific Islanders. Rather it expresses the Western idea of nurturing

⁴² Fay and Vaiao Ala’ilima, “Samoa Cultural Patterns Make Adjustment Difficult,” *Samoaans in Hawai‘i: Selected Readings* (Honolulu: University of Hawai‘i, 1977), 48.

⁴³ Erve Chambers and Setha Low, “Introduction,” in *Housing, Culture and Design: A Comparative Perspective* (Philadelphia: University of Pennsylvania Press, 1989), 5.

⁴⁴ Margaret Rodman, “Conclusion,” in *Home in the Islands: Housing and Social Change in the Pacific* (Honolulu: University of Hawai‘i Press, 1997), 223.

⁴⁵ Modell, “(Not) In My Back Yard: Housing the Homeless in Hawai‘i,” 196.

⁴⁶ Mary Kawena Pukui, E.W. Haertig and Catherine A. Lee, *Nana I Ke Kumu (Look to the Source)*, (Honolulu: Queen Lili‘uokalani’s Children’s Center, 1972), 171.

⁴⁷ Rodman, “Conclusion,” 230.

the nuclear family, which is inward looking toward the individual household rather than outward looking toward the larger social unit.⁴⁸

⁴⁸ Rodman, "Conclusion," 227.

4 CLIENT GROUP

SAMOANS IN HAWAII

Samoans are the selected client group for this study. This cultural group's traditional way of life differs significantly with life in an urban setting in the Western world, such as Honolulu. Studies have shown that migrant Samoans often have difficulty adjusting to life in Honolulu and housing is one of the issues. Understanding all of the adjustment issues as well as the background of the Samoan culture will help inform the most appropriate housing solution for Samoans living in urban Honolulu.

DEMOGRAPHICS

Pacific Islanders as a whole make up 0.13 percent of the U.S. population, of which Samoans are the second largest group, after Native Hawaiians, at 22.5 percent. The 2000 U.S. Census indicates that 128,183 Samoans (alone or in combination with another race) live in the 50 states and District of Columbia. More than 85,000 of these people said that they were 100 percent Samoan (one race). The majority of this Samoan population lives in Hawaii, California and Washington.⁴⁹ In Hawaii, 9 percent of the population is Native Hawaiian and Other Pacific Islander. Within Honolulu City and County, that population percentage is 8.5 of which 15,464 are Samoans, according to the 2000 Census.⁵⁰ Overall, the median age of Pacific Islanders is 24.4, which is relatively young compared to the national median of 35.4.⁵¹ In terms of Samoan median household income, it compares with the general U.S. population at about \$41,000; however Samoan families are much larger than the U.S. average with 4.1 people versus 2.6. Therefore, their earnings are stretched further than the average U.S. citizen reducing them to a lower socioeconomic status. This status is even more evident when looking at the poverty rates that show 20.2 percent of Samoans live below the poverty line compared to 12.4 percent of the total population.⁵² This statistic sheds light on why

⁴⁹ Asian and Pacific Islander American Health Forum (APIAHF), *Health Brief: Samoans in the United States*, (San Francisco: APIAHF, 2006), 1.

⁵⁰ U.S. Bureau of the Census, "State & County QuickFacts: Honolulu County, Hawaii."

⁵¹ U.S. Bureau of the Census, "We the People: Pacific Islanders in the United States," Census 2000 Special Reports, 2005, <http://www.census.gov/population/www/cen2000/briefs.html#sr> (accessed October 30, 2007).

⁵² Asian and Pacific Islander American Health Forum (APIAHF), *Diverse Communities, Diverse Experiences: The status of Asian Americans & Pacific Islanders in the U.S.*, (San Francisco: APIAHF, 2005).

Samoans make up 11.7 percent of the Section 8 housing participants in the City & County of Honolulu.⁵³

GEOGRAPHIC DISTRIBUTION OF SAMOANS IN HAWAII

Socioeconomic and cultural factors have influenced where Samoans live in Hawaii. Approximately 98 percent live on the island of O'ahu with concentrations in specific areas. Within urban Honolulu, about 30 percent live in Kalihi Palama, which is directly west of Chinatown and downtown Honolulu. Throughout the rest of the island, about 10 percent live in Waipahu, 10 percent in Lā'ie-Hau'ula, 10 percent in Salt Lake-Pearl City, 5 percent in Pālolo, 7 percent in Wai'anae-Mākahe and 27 percent dispersed throughout the other areas of O'ahu.⁵⁴

The areas outside of Honolulu, Wai'anae and Lā'ie-Hau'ula specifically, are fairly rural. On the Wai'anae coast, the economy is largely agriculture, fishing and service. In the Lā'ie-Hau'ula community, the Mormon Temple, Brigham Young University and the Polynesian Cultural Center are the prime focus. Generally, Samoans in this north shore community coexist with Native Hawaiians, Tongans, Cook Islanders and Tahitians, and have a relatively strong employment and housing base. The 30 percent of Samoans who live in the Kalihi area primarily live in three public housing areas including Kalihi Valley Homes (KVH), Mayor Wright Housing and Kūhiō Park Terrace (KPT). Kalihi Valley Homes consists of 400 single-story units, Mayor Wright Housing is a 364-unit complex and Kūhiō Park Terrace is a 614-unit housing complex consisting of two sixteen-floor high-rise towers.⁵⁵

SAMOAN MIGRATION TO HAWAII

Historically, Samoans migrated to Hawaii in two major waves with the first movement beginning in about 1920 to Lā'ie. This was right after the Mormon temple was completed there, which was the attraction for Mormon missionaries had been active in Samoa for many years. The second migration was much larger and began in 1951 and is still in progress. In that year 117 Samoan naval personnel were transferred to Pearl Harbor and

⁵³ SMS Research & Marketing Services, Inc., *Hawaii Housing Policy Study, 2003*, Section VIII A-18.

⁵⁴ John F. Mayer, 2002 National Foreign Language Resource Center (NFLRC) Summer Institute: Ia Faalautele Lau Gagana – Samoan Pedagogy Institute, June 24-28, 2002, Evaluation, NFLRC, <http://www.nflrc.hawaii.edu/NetWorks/NW29.pdf> (accessed October 27, 2007) 1-2.

⁵⁵ Robert Franco and Simeamativa Mageo Aga, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," in *Home in the Islands: Housing and Social Change in the Pacific* (Honolulu: University of Hawaii Press, 1997), 182-184.

they brought with them 257 dependents. In July 1952 the U.S.S. Jackson was made available to bring those family members left behind in Samoa to Honolulu. The remaining dependents totaled only a few hundred and were on a ship with a capacity of 1,000. There was plenty of extra space and other Samoans who desired to enlist in the Armed Forces or who had a sponsor in Hawai'i were given transportation to Hawai'i for \$30.⁵⁶ Other than military enlistment, Samoans migrated to Hawai'i primarily to gain a better education for themselves and their children. This still remains as a prime motivation for migration.⁵⁷

ISSUES OF ADAPTATION TO HONOLULU

Anthropologists Jan Rensel and Margaret Rodman's book *Home in the Islands: Housing and Social Change in the Pacific* provides insight of human relationships with architecture. The chapter "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," by Robert Franco and Simeamativa Mageo Aga, reveals very specific adaptation issues that Samoans living in urban Honolulu public housing are facing. Primarily, it is believed that the problems they are experiencing are directly resultant of the type of housing they are living in. The main problems they are having deal with community, hospitality and social control.

Community

In Samoan culture, community ties are the backbone of the society. The *tānoa* or 'ava (kava) bowl, is a round wooden bowl that is a powerful symbol in Samoan tradition and at the heart of Samoan community life. It is used on a daily basis by the *matai*s (chiefs) and during ceremonies that speak to relationships, to welcoming, to human dignity, to the need for community, to neighborly love and to harmonious living.⁵⁸ As Samoans move away from their homeland, they bring with them their cultural practices including the *tānoa* and try to continue to live a community lifestyle in an extended family under the leadership of their *matai*.⁵⁹ The *matai* system is rooted in "the principles of keeping

⁵⁶ Nancy Foon Young, "Introduction," *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 21.

⁵⁷ Tomi Knaefler, "First Large Wave of Samoans Touched Hawaiian Shores in '52," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 7.

⁵⁸ Miriam Kahn and Erin Younger, *Pacific Voices: Keeping our Cultures Alive* (Seattle: University of Washington Press, 2005), 30.

⁵⁹ Margaret Tuiolematagi Iofi, "Contributions to Hawai'i," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 30.

the family together, solidarity of community goals, sharing, of helping one another.”⁶⁰ Often though it is difficult to find housing suitable to this lifestyle and impossible to find suitable housing for those living in public housing developments. As a result, adaptation is necessary. However, it is extremely difficult for a communal society to adapt to the individualistic society of the United States.

This difficulty in adaptation becomes clearer when looking at the life of a Samoan more closely. Samoans are products of a communal society where they have built-in securities. In this system, the family is of the utmost importance and the individual is secondary. Everything an individual does is to benefit the family. In Hawai'i, Samoans are in a highly competitive economic system that they are unfamiliar with. At times, it feels hostile to them. One example is the gaining access to food, a basic necessity. At home, part of the built-in securities of a communal society is access to the land for farming and the sea for fishing to provide food for the family. In Hawai'i, everyone must have money to access land and sea. For the migrant Samoans in Hawai'i, historically they have not been able to earn enough money to purchase or rent land to grow food or to buy the proper fishing licenses required to catch food.⁶¹ This is a significant example of how their lifestyles must change when living in Honolulu. A fundamental way of life is not accessible and they must learn a new way to provide food for their families.

Hospitality

Samoan culture is known for its hospitality and this is reflected in the constant change in a family household composition. Samoans frequently host guests, entertain large groups of people for important cultural gatherings and help out a fellow Samoan in times of difficulty.⁶² However, in the existing public housing in Honolulu, this is almost impossible because the physical size of the units are too small. They are designed in size to house nuclear families, not extended families. Yet, the families still take in others as needed and often end up violating housing regulations. They do this because the extended family is the support system and they are obligated to help each other whether it is financial, healthcare or housing assistance. It is believed that there are no homeless or hungry

⁶⁰ Helen Altonn, "Much of Value Seen in Old Samoan Ways," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 35.

⁶¹ Peter Tali Coleman, "Keynote Address," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 38.

⁶² Rensel, "Introduction," 22.

Samoans in the United States because they always have their extended family that they can rely on for help.⁶³

The feeling of security is manifested in an attitude toward the future, which seems insouciant to the outsider. There is an expectation that things will always work out all right. There is no fear of being poor and alone. Someone will always help. While it is undesirable to put oneself in a position of dependence, it is far worse to ignore the responsibility to help a person, and especially a relative, in need.⁶⁴

Samoan churches are also a heavily relied upon support system and have become even more so in Hawai'i. In instances where a family simply cannot host guests, Samoan churches will help out by housing those guests during their stay. Samoans also have many of their large gatherings at churches that can accommodate them. For example, at Our Lady of Peace Cathedral, Father Kekumano welcomed the Samoans and opened the facilities on Fort Street to them. It gives the Samoan community a place to meet several times a week so they can attempt to maintain the communal aspect in their lives in Honolulu.⁶⁵

Social control

In communal societies, everyone is always working, worshiping, learning and playing together, which in effect creates an environment where everyone is constantly watching over each other. In an individual society, there is no permanent group always around to monitor one's actions. In this case, it is up to the individual to be responsible for his individual behavior. In Samoan society, individual behavior is the responsibility of the community. In support of this idea and to avoid wrongdoing, Samoans lead public lives.⁶⁶ "The fear of shaming one's extended family serves as a potent deterrent in the culture."⁶⁷

As Samoans leave the public, open housing configuration of their home villages and move to the private, closed housing of urban Honolulu, they face growing challenges,

⁶³ Ellen Rhoads Holmes and Lowell D. Holmes, *Samoan Village: Then and Now*, 137.

⁶⁴ Dennis T. P. Keene, "Houses Without Walls: Samoan Social Control" (PhD diss., University of Hawai'i, 1978) 48.

⁶⁵ Richard W. Wong, "The Samoans and Their Churches," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 33.

⁶⁶ Dennis T. P. Keene, "Houses Without Walls: Samoan Social Control," 10.

⁶⁷ Paul Cox, "Samoan Americans," *World Culture Encyclopedia*, [http://everyculture.com/multi/Pa-Sp/Samoan - Americans.html](http://everyculture.com/multi/Pa-Sp/Samoan-Americans.html) (accessed October 22, 2007).

particularly in areas of appropriate parental discipline, community policing and youth social control. The housing available to Samoan migrants directly implicates these challenges, by interfering with village-based strategies for social control. In contrast to the public nature of housing in Samoa, public housing in Honolulu is considered extremely private for Samoans. This raises concern about the social transformations that occur as Samoans move from open, transparent housing in Samoa to the closed-public housing in Honolulu. These transformations involve the development of new patterns of youth supervision and discipline, problems of youth gang participation and violence, drug use, child abuse and neglect and more general security and safety concerns.⁶⁸

The housing in Hawai'i is in extreme contrast with Samoan villages and does not allow for the communal aspects of Samoan life. The openness of the village arrangement and the wall-less Samoan *fale* 'houses' allow for continual community observation of behavior, and support shared responsibility for socialization through collaborative work and service. This system breaks down in the small, closed unit housing in Honolulu and limits supervision of children to only their parents, often single mothers, who are poorly prepared for child rearing without the support of other adults.⁶⁹

Without the support from other adults and due to the way the parents were raised, many children are neglected. Support in child rearing is emphasized as a group responsibility in Samoan culture where parental responsibilities are distributed throughout the extended family and the village. Often, the grandparents take primary care of the children.⁷⁰ As a result, many parents are not prepared to assume total responsibility for their own children.⁷¹ Child abuse also occurs because traditionally Samoans believe that disciplining their children is the strongest form of love because they are teaching them right from wrong. Starting at about 1½ years old, children are expected to obey their parents and elders at once, without hesitation and without asking questions.⁷² If discipline problems arise, the parents may react with a high degree of corporal punishment. This becomes a serious problem in the enclosed and confined nature of the housing in Honolulu where the

⁶⁸ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 176.

⁶⁹ Rensel, "Introduction," 23.

⁷⁰ Kathy Gautier, "What One Calls Discipline Another Calls Abuse," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 53.

⁷¹ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 188.

⁷² "Samoa: Marriage and the Family," World Culture Encyclopedia, <http://www.everyculture.com/Oceania/Samoa-Marriage-and-the-Family.html> (accessed December 4, 2007).

physical punishment can become excessive and no one from the extended family is near to intervene and stop it. In turn, this has led to complaints from neighbors to the authorities for child abuse. As a result, the courts order every month ten to twenty Samoan parents to attend parenting courses. Unfortunately, the classes do not help many of the Samoans because they are held in English. The parents end up quitting because they are unable to learn anything and then the whole cycle repeats itself never solving the problem.⁷³

Samoan parents are concerned that the wider community does not understand traditional Samoan methods of disciplining children, and that there is an unfair bias on the part of professionals in the child welfare field.⁷⁴ However, the law does not allow for this type of behavior and if child abuse is occurring, it must be dealt with through parenting classes in Samoan language and by providing living arrangements that are accommodating to the Samoan extended family parenting concept.

Several women mentioned that one of the chief advantages of living in the Samoan village (Nanakuli Samoan Church Village) is that they can raise their children 'in a Samoan way.' They particularly referred to *fa'aaloalo* (respect and courteous conduct). Corporal punishment is a common and accepted form of discipline. They felt their children were better behaved and controlled than other local children as a result.⁷⁵

Social control of the Samoan youth is also affected by the design of the Honolulu public housing developments. Ultimately, there is less control because of the buildings are closed off from and are not integrated with the surrounding grounds. These surrounding grounds have little to no adult supervision and Samoan youth gang participation is a major problem. Lack of control over the juveniles also occurs because there is confusion over the family relationship once they are not immersed in their own culture. This occurs because in Samoa, the chiefs are the authority figures of the extended family and the children treat them with respect and obedience. Intimate village life makes very clear the acceptable forms of social behavior but in America, it is not as clear. In Hawai'i, this relationship breaks down because they are not necessarily living with and being

⁷³ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 185,188.

⁷⁴ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 188.

⁷⁵ T.L.F. Fau'olo and Tumua Salanoa, "The Nanakuli Samoan Village," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 58.

supervised by the chiefs. This results in a confusion of who they should be respecting and obeying.⁷⁶ They are in a sense "lost in their freedom."⁷⁷

In addition to these social control problems is the lack of being able to feel a general sense of safety and security at the public housing in Honolulu. This is again attributed to the closed nature of the buildings and the lack of a community atmosphere. Of the three public housing options, Mayor Wright Housing complex is preferred as it offers larger units that better suit the larger family size and the surrounding grounds are flatter allowing for better policing and security.⁷⁸ However, a housing environment, such as the Nanakuli Samoan Village is still preferred. Participation in Samoan groups and village activities was noticeably higher in the Nanakuli Samoan Village than in Mayor Wright Housing, which fosters a community atmosphere and increasing the sense of security at their homes. The village families were intimately acquainted and mutually dependent, which is not the case in public housing that fosters an isolated, private atmosphere.⁷⁹

OTHER ADAPTATION / CULTURAL GAP ISSUES

Other adaptation issues exist that contribute to the decline of Samoans living in Hawai'i. Limited education, technical skills and English skills do not make it easy for Samoans to find work. In the nation, 16 percent of the Samoans are limited English proficient, twice the U.S. average of 8 percent. Considering education, 59 percent have a high school degree, which is higher than the national average of 50 percent, yet only 8 percent have a Bachelor's degree as their highest degree. This percentage is half of the U.S. average of 16 percent.⁸⁰ This hurts them when seeking employment, particularly those who had good jobs like teaching in Samoa. Although they may have work experience, in Hawai'i they are not considered for the same job if they do not have a degree.⁸¹

⁷⁶ Fay and Vaiao Ala'ilima, "Samoa Cultural Patterns Make Adjustment Difficult," 48-49.

⁷⁷ George and Louise Spindler, *Samoa Village: Then and Now* (Orlando: Harcourt Brace Jovanovich, Inc., 1992), 136.

⁷⁸ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 183.

⁷⁹ Fau'olo, "The Nanakuli Samoan Village," 58.

⁸⁰ APIAHF 2005.

⁸¹ Lagituaiva Tu'ulima Maga, "Interview with the Reverend Fa'aleaga Mapu," in *Samoa in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 39.

UNDERSTANDING SAMOAN CULTURE

It is important to obtain an in-depth understanding of Samoan culture to further clarify their values and way of living. This knowledge will be considered when designing housing for Samoans in urban Honolulu.

ORGANIZATION OF SAMOAN SOCIETY

Samoans live in a society that is highly controlled through their surrounding social and physical environments. The social organization provides a specific place within a well-defined hierarchy for each Samoan and everyone is constantly on display, even in their homes, to be viewed and judged accordingly by the community. This may sound as if it is a negative perspective but actually it is quite the opposite. The Samoans have a community-oriented environment that is in place to help teach each other values and life skills and to protect themselves from harm. "Samoans live their lives in such a way that the importance of the individual is secondary to that of the community."⁸² This atmosphere is achieved through the open physical environment that they build for themselves. Everyone is always being watched in order to be learn what is appropriate behavior in their social hierarchy and in how to raise their families. The Samoan society is one that values that all things personal are for public consumption and that physical punishment in public for any wrongdoing is considered appropriate and just. The physical surroundings are an important part of this system of social control. "The way houses are built, the space between the houses and the village layout all contribute to the effect of social control."⁸³

Samoans know that people will naturally be tempted by wrongdoing and they believe that people will act on those temptations unless precautionary measures are taken. Therefore, they provide precautionary measures in their day-to-day living environments to avoid the carrying out of these temptations. Examples of these precautions, in addition to their overall social organization, are included in this chapter. Their role in forming this Pacific Island society becomes clearly evident and will hopefully help those unfamiliar with this society to understand the reasons behind their actions that seem foreign to a Western point of view.

⁸² Kahn, *Pacific Voices: Keeping our Cultures Alive*, 35.

⁸³ State of Hawai'i Department of Education, *Social Control in Samoa...How do Social Groups in Samoa Control the Actions of their Members?*, Loia M. Fiaui and Vaoau T. Tuimalealiifano, Honolulu, 1997, 2.

FAMILY STRUCTURE

At the heart of Samoan culture is the family. The definition of family in Samoan culture differs from the Western definition of family as it extends beyond blood relatives. The basic social units comprising the family in Samoa include the *'au 'aiga* (household), the *'aiga* (extended family), and the *nu'u* (village) with the household being the center point of daily family activity.⁸⁴ A household has three or four dwelling houses, one for each nuclear family plus a guest house, and two or three outbuildings. It is common that most nuclear families have a separate house for themselves, though the children may sleep at the house of another relative, especially the boys over the age of ten or eleven who should be well separated from their sisters to prevent temptation of incestuous relationships. The outbuildings include a cookhouse and toilet and sometimes a bathhouse. "A point of great importance for Samoan society is that none of these structures has walls, internal or external, except the toilet which is usually a two-holer. In Samoa, one is always in a public behavior-setting."⁸⁵

The division of labor indicates the *'aiga* hierarchy and is structured according to age, sex, marital status and personal qualities.⁸⁶ "At the head of a Samoan family organization or household is a senior *matai*, a high chief who holds a traditional title through which the family traces its history."⁸⁷ Such a *matai* is a titled person, either a chief (*ali'i*) or an orator (*tulafale* or *failauga*) whose primary duty is the leadership and care of the family under his control. In return for his leadership, he is entitled to the services and cooperation of all members of his family.⁸⁸ "Almost invariably chiefs are men; they are selected on the basis of fitness for the position and, ideally, an agnatic connection to the chiefly line."⁸⁹ In addition to the high chief, each extended family has supporting junior chiefs who are selected by the extended family.⁹⁰ All *matai* honor their titles by serving their families but it is not necessary as one might think that they all live under the same roof or even in the same village.⁹¹ However, when occasion requires it, they all assemble, generally at the residence of the *matai*, to fulfill their many responsibilities, including "gathering the

⁸⁴ Anne Elizabeth Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa" (PhD diss., Columbia University, 1993) 66.

⁸⁵ Keene, "Houses Without Walls: Samoan Social Control," 18.

⁸⁶ Keene, "Houses Without Walls: Samoan Social Control," 18-19.

⁸⁷ Kahn, *Pacific Voices: Keeping our Cultures Alive*, 31.

⁸⁸ F.J.H. Grattan, *An Introduction to Samoan Custom* (Apia: Samoa Printing & Publishing Co. Ltd., 1948) 10.

⁸⁹ Keene, "Houses Without Walls: Samoan Social Control," 18-19.

⁹⁰ Kahn, *Pacific Voices: Keeping our Cultures Alive*, 31.

⁹¹ Grattan, *An Introduction to Samoan Custom*, 10.

resources necessary for weddings, funerals, investitures of new titles, and dedications of new meetinghouses or churches, as well as overseeing the use of communal land, settling disputes, and motivating work and service for the common good.”⁹²

The other members of the *'aiga* may be related to the chief through family lineage, by marriage into the family lineage, by adoption or by a combination of other ties.⁹³ Adoption is a common feature of Samoan family custom; it may occur by reason of relationship, friendship or because of a lack of young people in the family concerned. “There is no ceremony or formality associated with the practice. The boy or girl is taken into the family and insensibly with the passage of years and a record of good service comes to be regarded as one of the family.”⁹⁴

The women of Samoan society take their positions from that of their husbands or parents and their status in the community changes accordingly with that of their men. “When women assemble for the conduct of their share in village organization, the interplay of respect is the same as that between men.”⁹⁵ Their status as in-laws is that they are generally excluded as lineage members until they have provided years of service and often not even then.⁹⁶ Customarily, a girl who marries becomes a member of and lives with the family of her husband. However, it is allowed for a husband to live with this wife’s family and serve her *matai*. “The status of wife or husband in either of these two cases depends entirely upon acceptance by the family concerned, and the newcomers must be careful that their conduct is submissive and not such as to alienate people on whose bounty they depend.” If a woman’s husband dies, typically she returns to her own village, but if she remains, her position is not very secure, especially if there are no children of the marriage, and she must be particularly careful to not offend the family or to any new *matai* who may have been appointed.⁹⁷

The hierarchy within the family structure begins with the chief who is at the top. He is followed by his wife (*faletua*) who acts as a sort of executive officer directing many of the activities of the untitled men (*taulele’a*) and their wives. She is followed by the

⁹² Kahn, *Pacific Voices: Keeping our Cultures Alive*, 31.

⁹³ Keene, “Houses Without Walls: Samoan Social Control,” 19.

⁹⁴ Grattan, *An Introduction to Samoan Custom*, 11.

⁹⁵ Grattan, *An Introduction to Samoan Custom*, 16.

⁹⁶ Guernsey, “Space as Social Construct: The Vernacular Architecture of Rural Samoa,” 70.

⁹⁷ Grattan, *An Introduction to Samoan Custom*, 11.

tama'ita'i who are the unmarried women of the family through divorce, widowed or never married.

Parallel to the *tama'ita'i* is the *taupou*, the ceremonial maiden or hostess, and the *manaia* is her male counterpart. Next in the family order are the untitled men, *taulele'a*, and their wives.⁹⁸ "As an untitled man the future candidate serves the *matai* and in doing so serves the family. He takes to hand any task assigned by the chief, labors in the plantation to provide food and assists in village projects."⁹⁹ Essentially, the *taulele'a* are the work force of the family. In addition to tending the plantations and taking part in village projects, they also fish and provide cash for such trade goods. They do this by working in the urban areas of Samoa or by emigrating, temporarily or permanently, to New Zealand or the United States where they can work and then send money home. It is not uncommon for Samoan nuclear families to be separated for years at a time in order to provide for the entire family.¹⁰⁰

In addition to cooking, the women have many responsibilities to also serve the family. They help tend plantations, gather shellfish, keep house and, like the men, they may have cash jobs. However, traditionally their most important products, besides children, were mats. Mats vary widely but mostly can be divided into two categories – fine-mats, *ie toga*, which are the most valued of material possessions but serve no utilitarian function, and mats which are used for such purposes as sitting or sleeping. More recently, the shift of cooking from a male to a female activity and the opportunities to make money outside of the family has reduced the time available for the plaiting of fine-mats, the finest of which take years to complete. "Finally, the introduction of money itself, which provides such a radically different concept and means of storing wealth, has undermined this traditional activity."¹⁰¹

The children in the Samoan families are cherished for multiple reasons. They are evidence of reproductive capability of the parents, which is highly valued. In addition, they are a source of entertainment, they do household tasks and they support their

⁹⁸ Keene, "Houses Without Walls: Samoan Social Control," 20-21.

⁹⁹ Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 69-70.

¹⁰⁰ Keene, "Houses Without Walls: Samoan Social Control," 21.

¹⁰¹ Keene, "Houses Without Walls: Samoan Social Control," 22.

parents in later years.¹⁰² The care of the children is divided amongst the members of the community, and it is common for a child to casually move between various households to live, even abroad.¹⁰³ The older children also participate in bringing up the younger ones. One of their responsibilities is to keep the babies and toddlers quiet by any reasonable means, especially during the gatherings of the adults. If a complaining child cannot be quieted, he must quickly be taken elsewhere.¹⁰⁴ This duty is an example of the relationship between children and adult relatives, which is one of respect and service. When the children grow older and are young adults, they do not rely on their parents for financial support by any means. If needed, they will seek assistance from their brothers, sisters and cousins. "This attitude never changes, so that one is always in the position of serving his parents."¹⁰⁵

As discussed in this chapter, it is clear that Samoan society has a clearly defined social order that leads to a communal benefit. The social hierarchy gives structure and order to the community making clear the role that each individual plays in their society. Each of the societal roles plays a part in providing for and protecting the extended family. This service is all in the name of their *matai* who, in turn, is serving them, the community.

VILLAGE STRUCTURE

A Samoan village, or *nu'u*, consists of hundreds of villagers living together as a family.¹⁰⁶ Most of the villages are coastal and the populations range between 300 and 1,200 persons and average 450 to 600 persons.¹⁰⁷ Like the family, the village has a social hierarchy of village-wide organizations that carry out community projects. Each organization has special tasks to perform. This organizational strategy requires reliance on one another and cooperation as everyone is working towards the same goal, the prosperity of the village as a whole. As in the *'aiga*, major decisions regarding the village are made by the chiefs. The chief's wives also play a role in decision-making for some

¹⁰² Keene, "Houses Without Walls: Samoan Social Control," 23.

¹⁰³ Tomi Knaefler, "World War II Shattered Samoan Paradise," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 52.

¹⁰⁴ Grattan, *An Introduction to Samoan Custom*, 165.

¹⁰⁵ Keene, "Houses Without Walls: Samoan Social Control," 23-24.

¹⁰⁶ Tomi Knaefler, "Myths about Samoans," in *Samoans in Hawai'i: Selected Readings* (Honolulu: University of Hawai'i, 1977), 6.

¹⁰⁷ "Samoa: Settlements," World Culture Encyclopedia, <http://www.everyculture.com/Oceania/Samoa-Settlements.html> (accessed December 4, 2007).

matters that are believed to be better handled by women, such as public health measures.¹⁰⁸

"Villages are marked by the presence of architecture: churches, government buildings and residences."¹⁰⁹ Their spatial arrangement generally lays out in one of two ways. The first layout being a single line of principal houses facing the beach with the *malae*, the sacred ceremonial area, before it and the second layout being two lines of principal houses facing each other with the *malae* between them.¹¹⁰ Conceptual diagrams and images in Figures 1 – 4 illustrate examples of village organization. The *malae* functions as the social, political and religious center of the village. Within the *malae*, careful, controlled behavior is expected as it is constantly subject to chiefly supervision.¹¹¹ The concept of an unobstructed expanse marked by important religious or social buildings and placed within a village is a pan-Polynesian phenomena. However, the individual structures and their locations relative to the village vary between the different island groups. For Samoans, the positioning of the *malae* is at the center of the village where it is a mark of village community interaction and unity.¹¹²

The principal houses that line the *malae* are guest houses, or *fale tele*, and are part of each household that surrounds the *malae*. These houses are constructed only by artisans and are reserved for the use of guests and unexpected visitors.¹¹³ One of which is the ranking high chief's assembly house.¹¹⁴ Although each extended family possesses a guest *fale*, the one belonging to the senior chiefly title of the village embodies the identity of the community. This *maota*, or high chief's guest house is the largest and most impressive of the guest houses and is the site for the most important council meetings. "The use of this *fale* corresponds with the view that the senior *ali'i* carries the dignity of the village. The prestige of the *nu'u* is also reflected in the church buildings found there."¹¹⁵ One of the associated church buildings is the *fale lalaga*, or weaving house. This building is where young girls can learn the art of weaving and older women can socialize. "The existence of a separate weaving house underscores the importance of this activity in the

¹⁰⁸ Keene, "Houses Without Walls: Samoan Social Control," 34-35.

¹⁰⁹ Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 75.

¹¹⁰ Grattan, *An Introduction to Samoan Custom*, 53-54.

¹¹¹ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 178.

¹¹² Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 84, 94.

¹¹³ Grattan, *An Introduction to Samoan Custom*, 53-54.

¹¹⁴ "Samoa: Settlements," World Culture Encyclopedia.

¹¹⁵ Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 75.

production of social and political relationships. The fine mats made here are themselves the physical link and visual marker of these affiliations.”¹¹⁶

Behind the line of guesthouses are the more humble living quarters and plant gardens of each extended family's household, which can be seen in Figures 7 – 10. This arrangement includes several houses, or *fale*, in which the family lives and sleeps, followed by a cooking house, or *tunoa*, which is actually a thatch shelter over a cooking area and then the outbuildings, including a toilet and bathhouse. The family erects these buildings themselves. Beyond these structures are low stone walls or plantings marking the boundary of the each household and the village. Beyond these walls are the plantation crops.¹¹⁷ These crops and the other lands outside the village are areas outside the range of strict social control. Those who go to these areas with no particular purpose are considered suspect and are associated with anti-social behavior. Also, it is believed that ghosts and spirits inhabit the bush lands providing an aura of danger and evil.¹¹⁸

Regarding the architecture of the buildings, it is considered transient in character, which is reinforced by the tropical climate. The primary building material is wood, which decays quickly due to a humid environment and the presence of termites. In general, stone was not used in construction except for its application in graves, foundation work, fences or military fortification.¹¹⁹

In Samoa, there are two prevalent traditional house forms, the long house and the round house. The guest house is typically a long house and the family houses can be either long or round.¹²⁰ The typical *fale*, is built of coconut timbers covered with a thatch roof.¹²¹ As shown in Figures 11 – 13, the plan is in an elliptical or circular pattern with a series of perimeter posts and a center post that support a beehive-shaped roof. Additional common general characteristics of the long and the round houses are as follows. The houses typically rest on elevated platforms to provide protection from the

¹¹⁶ Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 79-80.

¹¹⁷ Grattan, *An Introduction to Samoan Custom*, 53-54.

¹¹⁸ Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 91.

¹¹⁹ Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 100.

¹²⁰ Grattan, *An Introduction to Samoan Custom*, 58.

¹²¹ John Forster, "The Assimilation of Samoan Migrants in the Naval Housing Area, Pearl Harbor, Hawai'i" (master's thesis, University of Hawai'i, 1954), 31.

elements but also; the platforms are an indication of the occupant's societal status. The height corresponds as such that the higher the platform, the higher the rank of the occupant.¹²² Both house types have a high, steeply pitched roof thatched with sugar-cane leaves. This roof slopes down to within four or five feet of the ground on all sides and is supported by small posts at the edge of the structure. The spaces in between the posts are typically left open to prevent people from being isolated, although woven coconut leaf screens may be let down to protect the inhabitants from rain and sun as needed.¹²³ The floors of the houses consist of coral pebbles and mats are used extensively as floor coverings when desired or when hosting guests.¹²⁴ Inside the houses, there are no walls to create separations. The entire family - children, husbands, wives, grandparents - lives together and sleeps together inside one big room, which is the whole house.¹²⁵ Furniture is limited in the houses. The wood beams serve as shelves and there might be a few things such as a bed, sleeping mats, a cupboard for food storage and wooden chests for personal belongings.¹²⁶

In the guest house of the ranking high chief, there are specific locations for each person to sit during chief gatherings. "Orator chiefs sit in front; high chiefs sit at the sides, and junior chiefs and untitled persons sit in the back. In addition, each title is accorded a particular housepost where the incumbent of that title is expected to sit."¹²⁷

Overall, the structure of Samoan society, villages and houses fosters a social and public environment where everyone is constantly together in all aspects of their lives allowing complete social control through external elements. "The individual looks outward to see what the social and physical environment permits rather than inward to a set of personal standards which might otherwise authorize his behavior...there is no lonely struggle against temptation as the thrust of the system is to minimize tempting situations."¹²⁸ The wall-less houses and powerful norms of social life discourage the more private aspects of experience, which keep people in almost constant social interaction.¹²⁹ Individuals

¹²² Holmes, *Samoan Village: Then and Now*, 2nd ed., 60.

¹²³ E.S. Craighill Handy and Willowdean Chatterson Handy, *Samoan House Building, Cooking, and Tattooing* (Honolulu: Bernice P. Bishop Museum, 1924), 5.

¹²⁴ Forster, "The Assimilation of Samoan Migrants in the Naval Housing Area, Pearl Harbor, Hawai'i," 31.

¹²⁵ Young, *Samoans in Hawai'i: Selected Readings*, 11.

¹²⁶ Grattan, *An Introduction to Samoan Custom*, 59.

¹²⁷ Keene, "Houses Without Walls: Samoan Social Control," 39.

¹²⁸ Keene, "Houses Without Walls: Samoan Social Control," 61.

¹²⁹ Brad Shore, *Sala'ilua: A Samoan Mystery* (New York: Columbia University Press, 1982), 148.

regulating each other's behavior, rather than each regulating his own makes social control in Samoa truly social.¹³⁰

¹³⁰ Keene, "Houses Without Walls: Samoan Social Control," 62.

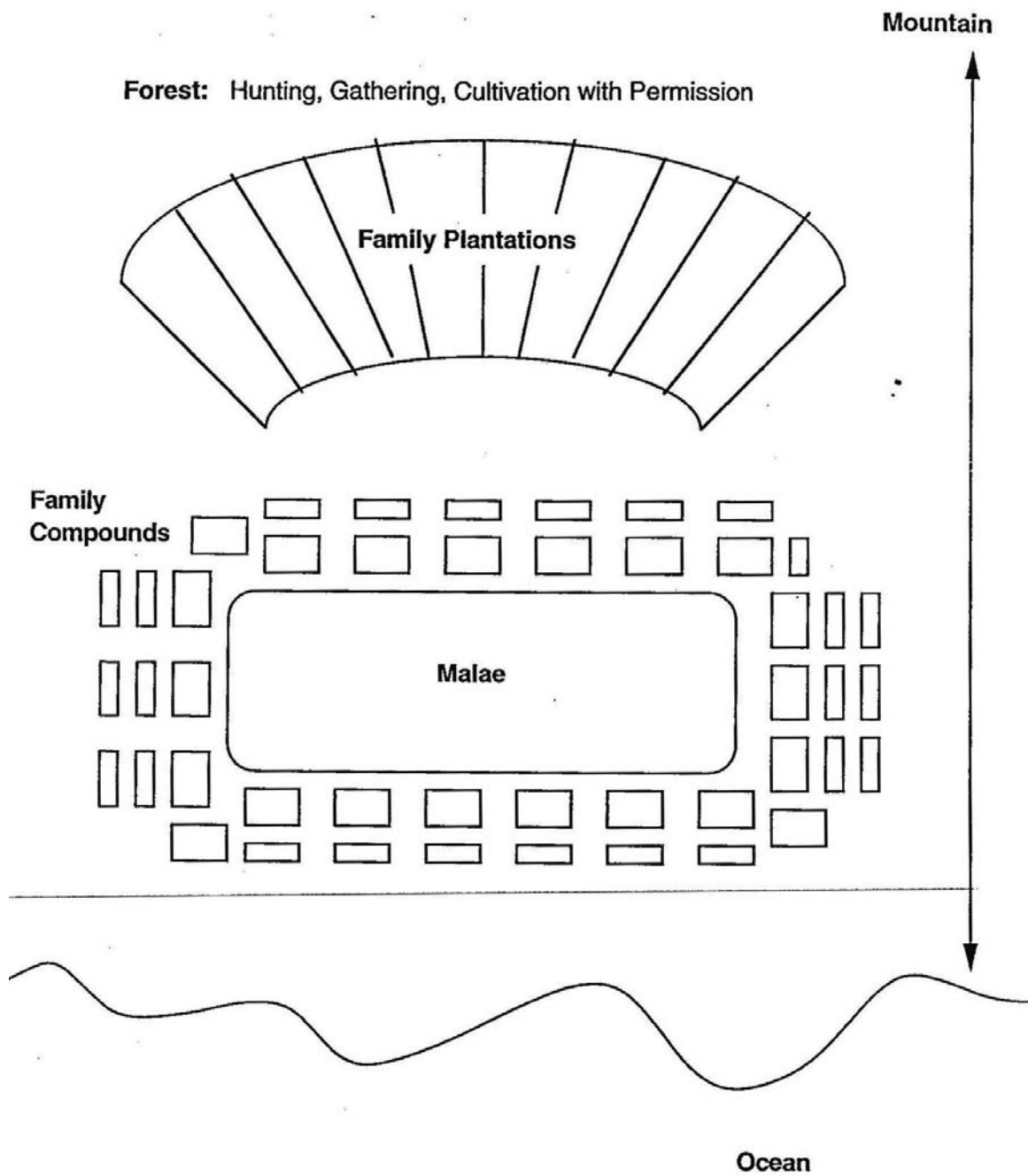


Figure 1: Village Organization
 Department of Urban and Regional Planning (DURP), *DURP American Samoa Village Planning Workbook*
 (Honolulu: University of Hawai'i, 1997).

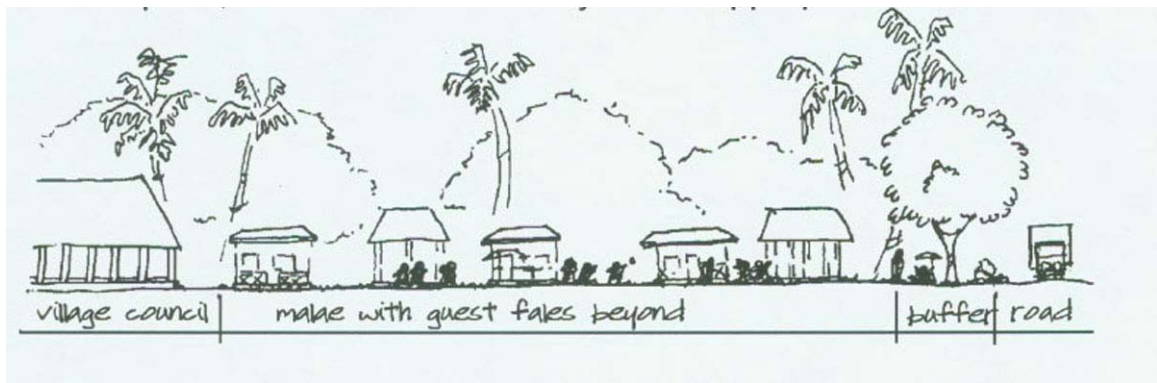


Figure 2: Village Organization Section
DURP American Samoa Village Planning Workbook



Figure 3: Village *Malae*

[http://www.rawshakti.com/yogasamoa/webpictures/pages/Samoan%20Fale%20\(house\).htm](http://www.rawshakti.com/yogasamoa/webpictures/pages/Samoan%20Fale%20(house).htm) (accessed December 10, 2007).



Figure 4: Guest Houses
<http://www.samoa.hotel-pictures.com/upolu-island/namua/fale.html> (accessed December 10, 2007).



Figure 5: Chiefs Meeting
<http://www.everyculture.com/A-Bo/American-Samoa.html> (accessed December 10, 2007).



Figure 6: Weaving House
<http://www.visitsamoa.ws/samoa/cms/japanese/about/>
(accessed December 10, 2007).

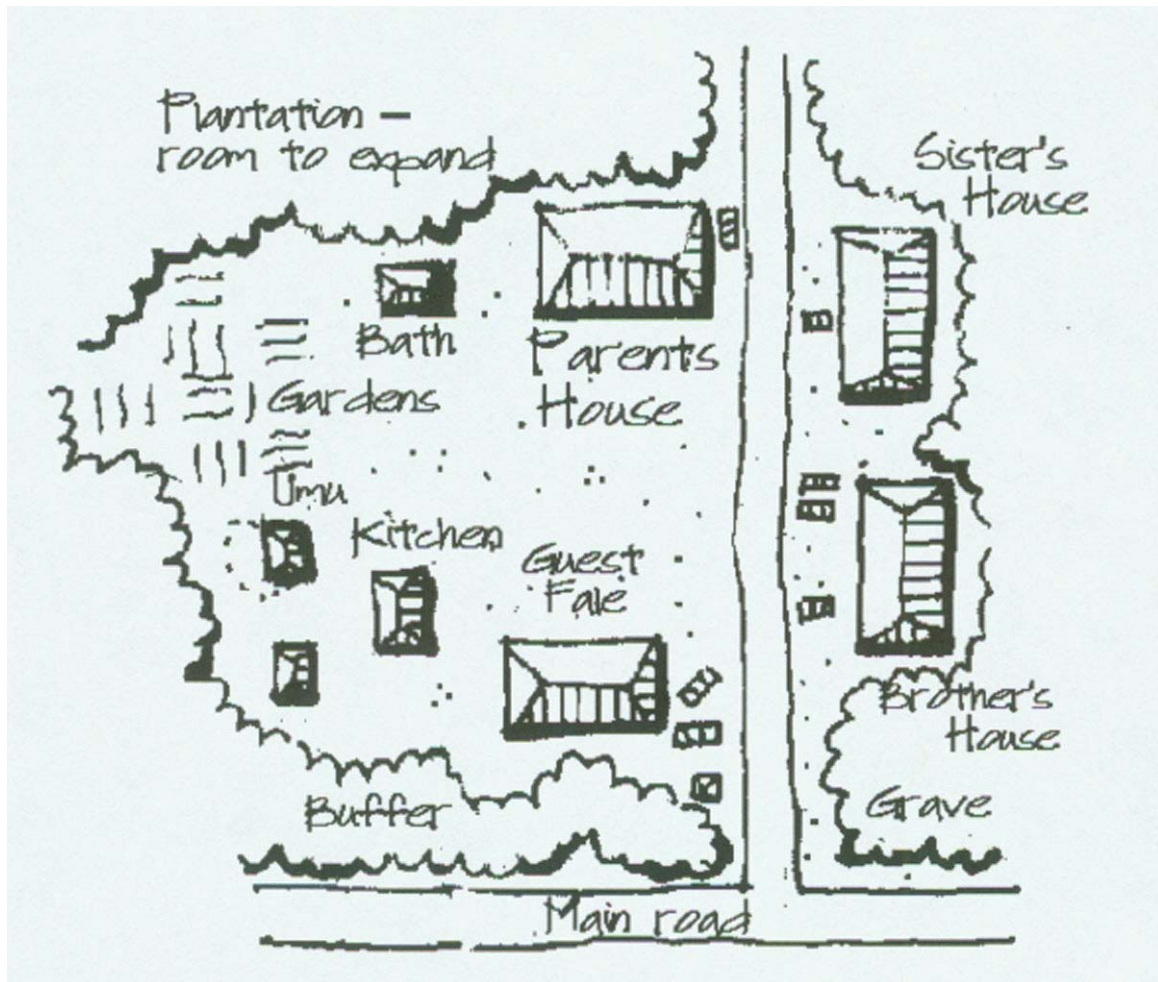


Figure 7: Existing 'Aiga Compound
DURP American Samoa Village Planning Workbook



Figure 8: Long House
<http://www.visitsamoa.ws/samoa/cms/japanese/about/> (accessed December 10, 2007).



Figure 9: Long House
<http://www.visitsamoa.ws/samoa/cms/japanese/about/> (accessed December 10, 2007).



Figure 10: Cooking House
<http://www.flickr.com/photos/silvo/534035450/in/pool-43678393@N00/> (accessed December 10, 2007).

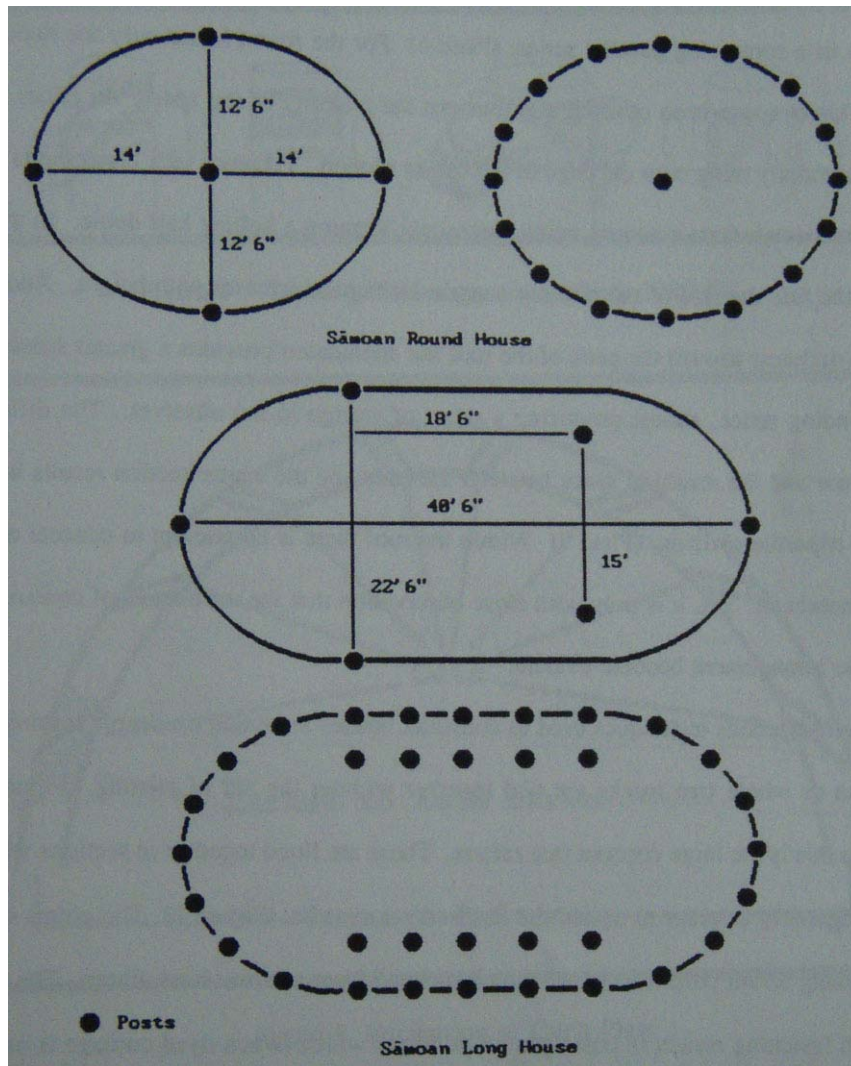


Figure 11: Round House and Long House Plans
 Guernsey, "Space as Social Construct: The Vernacular Architecture of Rural Samoa," 1993.



Figure 12: Long House
<http://www.flickr.com/photos/wiphey/33093870/in/pool-43678393@N00/> (accessed December 10, 2007).



Figure 13: Round House
http://photomas.net/pmaspages/wsamoa_pmas.htm (accessed December 10, 2007).

5 AFFORDABLE HOUSING CRITERIA

HUD MINIMUM HOUSING QUALITY STANDARDS (HQS)

In order to ensure that the affordable housing provided through the housing choice voucher program is “decent, safe and sanitary,” HUD has imposed basic housing quality standards (HQS) that must be met. These housing quality standards define “standard housing” and establish minimum criteria that afford the tenants’ health and safety. At least once a year, the public housing agency (PHA) involved in the voucher program inspects the participating housing units for compliance with the housing quality standards before new leases are signed. During the inspection they are examining the following 13 HQS performance requirements that are put forth in HUD’s “Voucher Program Guidebook: Housing Choice”:

- Sanitary facilities;
- Food preparation and refuse disposal;
- Space and security;
- Thermal environment;
- Illumination and electricity;
- Structure and materials;
- Interior air quality;
- Water supply;
- Lead-based paint;
- Access;
- Site and neighborhood;
- Sanitary condition; and
- Smoke Detectors.¹³¹

¹³¹ U.S. Department of Housing and Urban Development, “Voucher Program Guidebook: Housing Choice, 2001,” <http://www.hud.gov/offices/pih/programs/hcv/forms/guidebook.cfm> (accessed November 27, 2007) 10-2.

The following performance requirements and acceptability standards have been summarized for the purposes of this DArch project to identify the minimum design standards required for a new development under the housing choice voucher program.

1. Sanitary Facilities

- The dwelling unit must include, at a minimum, one private sanitary facility within the unit that includes a toilet, fixed lavatory and a tub or shower. Additional bathrooms are not required to contain all of the plumbing fixtures.

2. Food Preparation and Refuse Disposal

- The dwelling unit must have suitable space and appliances to store, prepare and serve food in a sanitary manner. Each dwelling must have an oven and a stove/range and an appropriately sized refrigerator based on the size of the family.

3. Space and Security

- The dwelling unit must provide adequate space and security for the family, which includes, at a minimum, a living room, kitchen and a bathroom.
- There must be at least one bedroom or living/sleeping room for every two people. Children, unless the same gender or at a very young age, are not allowed to occupy the same sleeping room.
- Exterior doors and accessible exterior windows must be lockable. This includes windows with sills that are less than six feet off the ground.
- The family is allowed to determine the adequacy of room sizes and locations.

4. Thermal Environment

- The dwelling unit must provide a healthy living environment that is defined by the PHA for the local climate. A safe heating system is required in cold climates, but air conditioning is not required.
- Energy conservation measures, such as dwelling insulation, are left up to the tenant family to address as they see fit.

5. Illumination and Electricity

- Each room must have adequate natural daylight or artificial illumination to allow for indoor activities and the health and safety of the occupants.
- At least one window must be present in both the living room and each sleeping room.

6. Structure and Materials

- The dwelling unit must be structurally sound, protect the occupants from the outdoor elements and not pose a threat to the health and safety of the occupants.
- Handrails must be provided when stairs have more than three steps and protective railings are required when lanais are thirty or more inches above the ground.

7. Interior Air Quality

- The dwelling unit must not have any air pollutants that could harm the health of the occupants.
- Adequate air circulation is required in the unit.
- Bathrooms must have one operable window or other adequate ventilation.
- Sleeping rooms must have at least one operable window.

8. Water Supply

- The dwelling unit's water supply must be free from contamination.
- Clean water must be distributed to all unit fixtures and wastewater must leave the unit to an approved sewer area.
- Water heaters may not be placed in bedrooms or living areas unless safety shields or dividers are installed.

9. Lead-Based Paint

- Lead paint is not allowed in new developments.

10. Access

- The unit must have private access and have an alternate means of exit from the building, such as fire stairs or windows, in the event of a fire.

11. Acceptability Criteria

- The building site and neighborhood should not be subjected to unreasonable disturbing noises or other dangers to the health, safety and general welfare of the occupants. This includes dangerous walks or steps, flooding, sewer hazards, mudslides, abnormal air pollution, smoke or dust, excessive noise, vibration, vehicular traffic, fire hazards or excessive buildup of trash, vermin or rodent infestation.
- It is left up to tenant preference to judge the character of the neighborhood in terms of drug activity, commercial enterprises and convenience to shopping and other facilities.

12. Sanitary Condition

- The dwelling unit must be free from vermin and rodent infestation and unsanitary conditions that invite vermin.

13. Smoke Detectors

- At least one smoke detector must be in proper operating condition and located on each level of the dwelling unit.¹³²

AFFORDABLE HOUSING REQUIREMENTS BY COUNTY

Local public housing agencies (PHA) put forth affordable housing requirements for the development of new projects. The following are the existing requirements for Honolulu County.

Authorization: Department of Housing and Community Development (DHCD) Rules for the Terms of Unilateral Agreements Requiring Affordable Housing or the Affordable Housing Rules, effective October 31, 1994.

¹³² U.S. Department of Housing and Urban Development, "Voucher Program Guidebook: Housing Choice, 2001," 10-3 – 10-14.

The Affordable Housing Rules provided that a developer may satisfy the affordable housing requirement by providing one or more of the following options, as acceptable to the DHCD:

- a) Affordable for-sale units on the project site;
- b) Affordable rental units on the project site;
- c) Conveyance to the City of improved or unimproved land within or without the project site, zoned and suitable for the construction of affordable housing units;
- d) Affordable for-sale or rental units constructed on a site other than the project site;
- e) A cash contribution ("in-lieu fee") to the DHCD equal to the difference between the estimated cost of building the affordable housing units less the estimated sales price of the affordable housing units at the time the inlieu payment is due; and
- f) Finished house lots for affordable housing owner-builder efforts, under guidelines to be formulated by the DHCD.¹³³

Percent Affordable: 30% of total residential units

Targeted Income Groups: 1/3 @ 80% and below; 2/3 @ 80 – 120%

Credit Structure: 0 – BR/1 – BA = .68

Options to Satisfy Housing Condition: Units or finished lots on site; Units off site; Land dedication; In-lieu fee

Trigger: Zone change

Eligibility criteria: 18 years; U.S. citizen; No majority interest in property suitable for dwelling; Financial ability; Intent to reside

Transfer/Resale Restrictions: 2-8 year buyback depending on income group; Shared appreciation

Rental Restrictions: 10 years¹³⁴

¹³³ City and County of Honolulu, "Council Bills and Resolutions Text," <http://www.honolulu.gov/refs/bill/text/2003/r265.htm> (accessed November 30, 2007).

¹³⁴ HCDCH, *Affordable Housing Requirements by County*, 2005.

INTERNATIONAL BUILDING CODE (IBC) REVIEW

In addition to complying with the federal housing quality standards and the local affordable housing requirements, the housing project must comply with the locally adopted building codes. The intention of the building code is to protect the health, safety and welfare of the public. The City & County of Honolulu adopted the 2003 International Building Code effective September 18, 2007.¹³⁵ A review of this building code has led to identifying the following requirements that pertain to this housing project. In addition, the review helps to understand how these requirements impact the overall design.

Occupancy Classification

Determining the intended use or occupancy of a building is a fundamental step in the building code review. The occupancy of a building is the determining factor for many of the other requirements including allowable area, height of a building, means of egress and type of construction. The ten IBC-established occupancy groups include: Assembly (A), Business (B), Educational (E), Factory and Industrial (F), High Hazard (H), Institutional (I), Mercantile (M), Residential (R), Storage (S) and Utility and Miscellaneous (U). This project's design of a housing development falls under the Residential Group R occupancy. Group R has within itself several sub-occupancies determined by the length of occupancy and housing types. Multifamily dwellings such as apartments are classified as Group R-2 occupancy because the occupants take on permanent residency or at least sleep in more than two dwelling units for longer than a 30-day period.¹³⁶

Building Heights and Areas

After determining the occupancy, the next step is to use Table 503 in Chapter 5 of the IBC to identify the allowable building height and area dependent on the occupancy and construction type. Building height is defined as the vertical distance from the grade plane to the average height of the highest roof surface and building area is the area included within the surrounding exterior walls, meaning to the outside face of the exterior

¹³⁵ Honolulu Department of Planning and Permitting, "New Building Code Signed Into Law," <http://honoluludpp.org/WhatsNew/NewBC062007.pdf> (accessed December 6, 2007).

¹³⁶ Francis D.K. Ching and Steven R. Winkel, *Building Codes Illustrated: A Guide to Understanding the International Building Code* (Hoboken: John Wiley & Sons, Inc., 2003), 28.

walls. A real estate term to describe this area is gross building area and it is measured in square feet (sf).¹³⁷

The types of construction are divided into five categories: Type I through Type V and are based on the fire-resisting capabilities of the primary materials of the respective construction type. Type I is the most fire-resistive progressing down to Type V, which is the least fire-resistive. Therefore, Type I will always have a higher allowable building height and area because it has the highest level of fire resistance. The five types are further subdivided into two categories, A and B, based on the inherent fire-resistive or combustibility of the materials. Types I and II are made of non-combustible building materials, which include masonry, concrete and steel. Types III, IV and V allow the use of combustible materials, such as woods and plastics, in varying degrees.¹³⁸

An excerpt from the IBC Table 503, as seen in Figure 14 Indicates the allowable number of floors and per floor areas that pertain to R-2 (Apartment) are as follows:

Type I A Fire-rated – Unlimited floors / Unlimited Area

Type II A Fire-rated – 4 floors / 24,000 sf

Type III B Nonrated – 4 floors / 16,000 sf

Type IV Heavy Timber – 4 floors / 20,500 sf

Type V B Nonrated – 2 floors / 7,000 sf

There are exceptions to the table and several of these may be applicable to this project as shown in Figures 15 – 19.¹³⁹

¹³⁷ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 44.

¹³⁸ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 56-57.

¹³⁹ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 44.

Excerpt from IBC Table 503 (Showing Allowable Number of Floors and Proportionate Floor Areas)






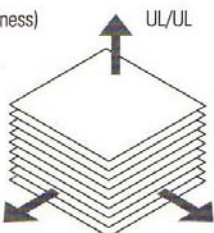
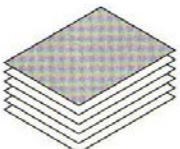

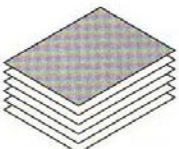

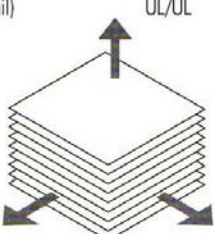
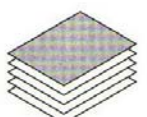



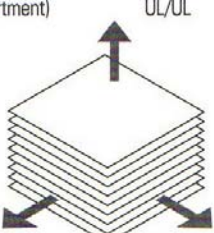
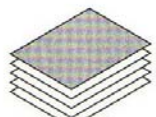



Construction Type (See Table 601)	Type I A Fire-Rated	Type II A Fire-Rated	Type III B Nonrated	Type IV Heavy Timber	Type V B Nonrated
Occupancy					
A-2 (Restaurant)	UL/UL 	3/15,500 sf 3/(1440 m ²) 	2/9,500 sf 2/(883 m ²) 	3/15,000 sf 3/(1394 m ²) 	1/6,000 sf 1/(557 m ²) 
B (Business)	UL/UL 	5/37,500 sf 5/(3484 m ²) 	4/19,000 sf 4/(1765 m ²) 	5/36,000 sf 5/(3344 m ²) 	2/9,000 sf 2/(836 m ²) 
M (Retail)	UL/UL 	4/21,500 sf. 4/(1997 m ²) 	4/12,500 sf 4/(1161 m ²) 	4/20,500 sf. 4/(1904 m ²) 	1/9,000 sf 1/(836 m ²) 
R-2 (Apartment)	UL/UL 	4/24,000 sf 4/(2230 m ²) 	4/16,000 sf 4/(1486 m ²) 	4/20,500 sf 4/(1904 m ²) 	2/7,000 sf 2/(650 m ²) 

Figure 14: Excerpt from IBC Table 503

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 47.

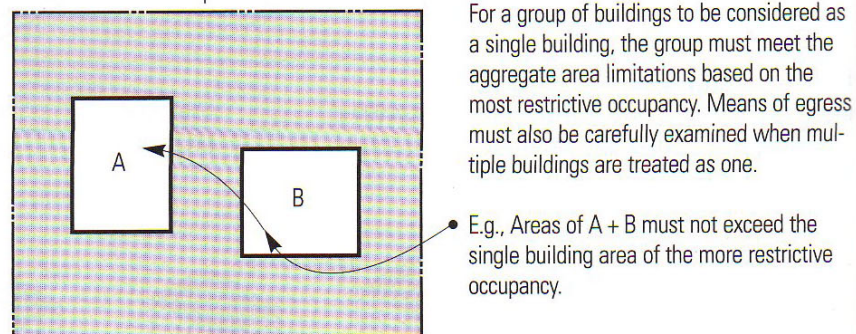
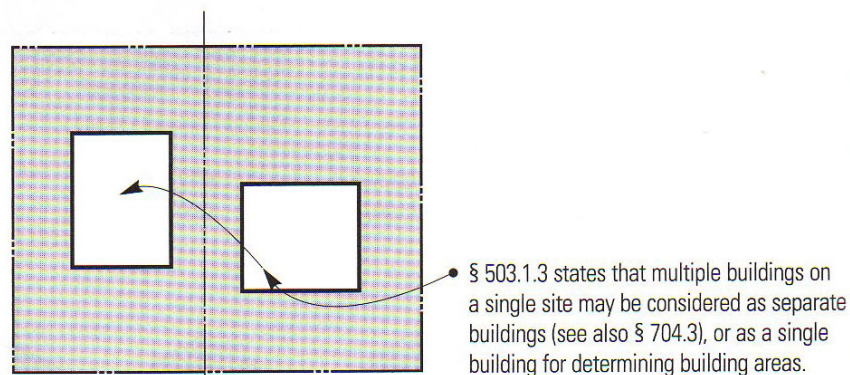
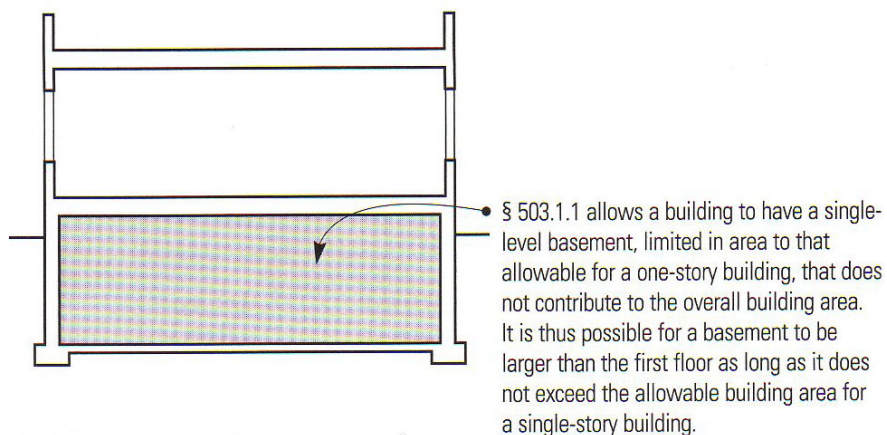
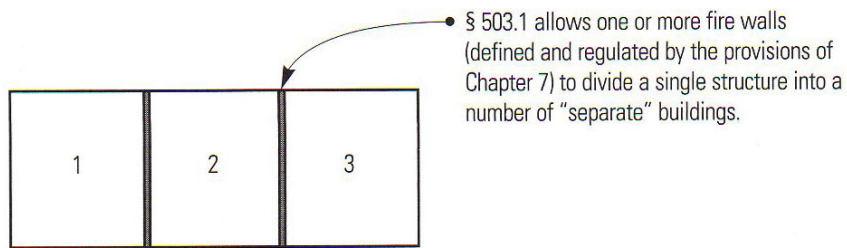


Figure 15: Exceptions to IBC Table 503
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 48.

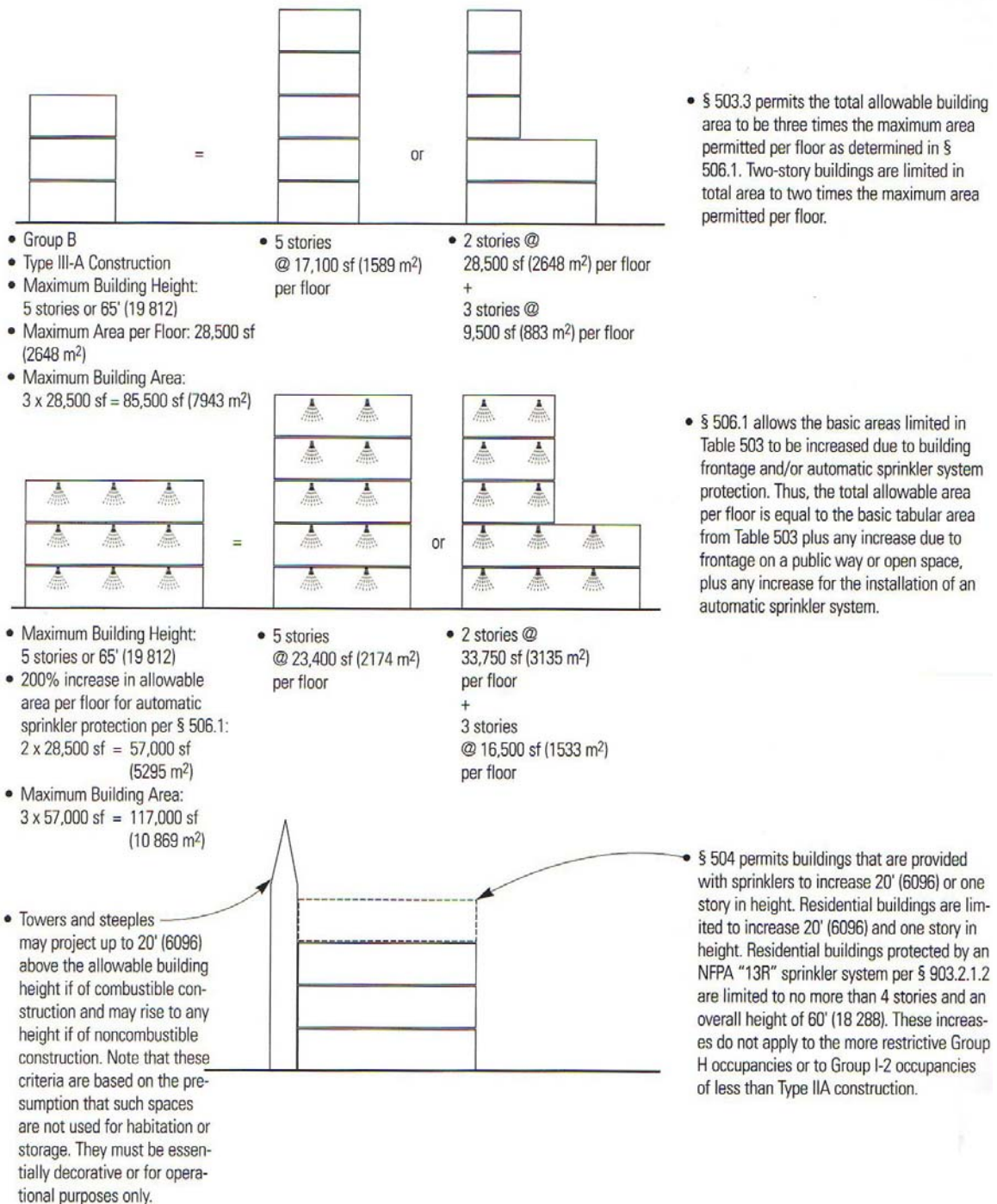


Figure 16: Height Modifications
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 49.

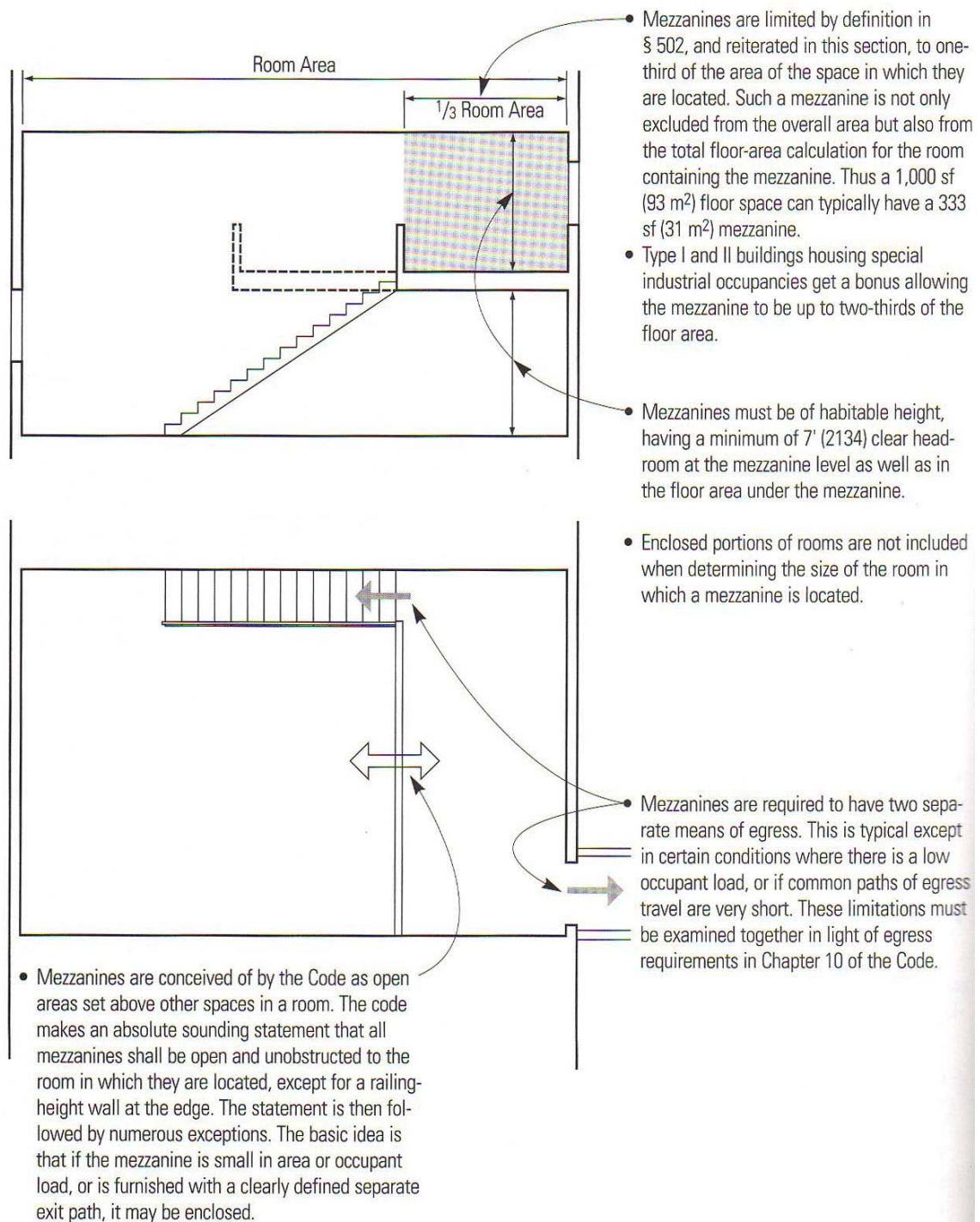


Figure 17: Mezzanines

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 50.

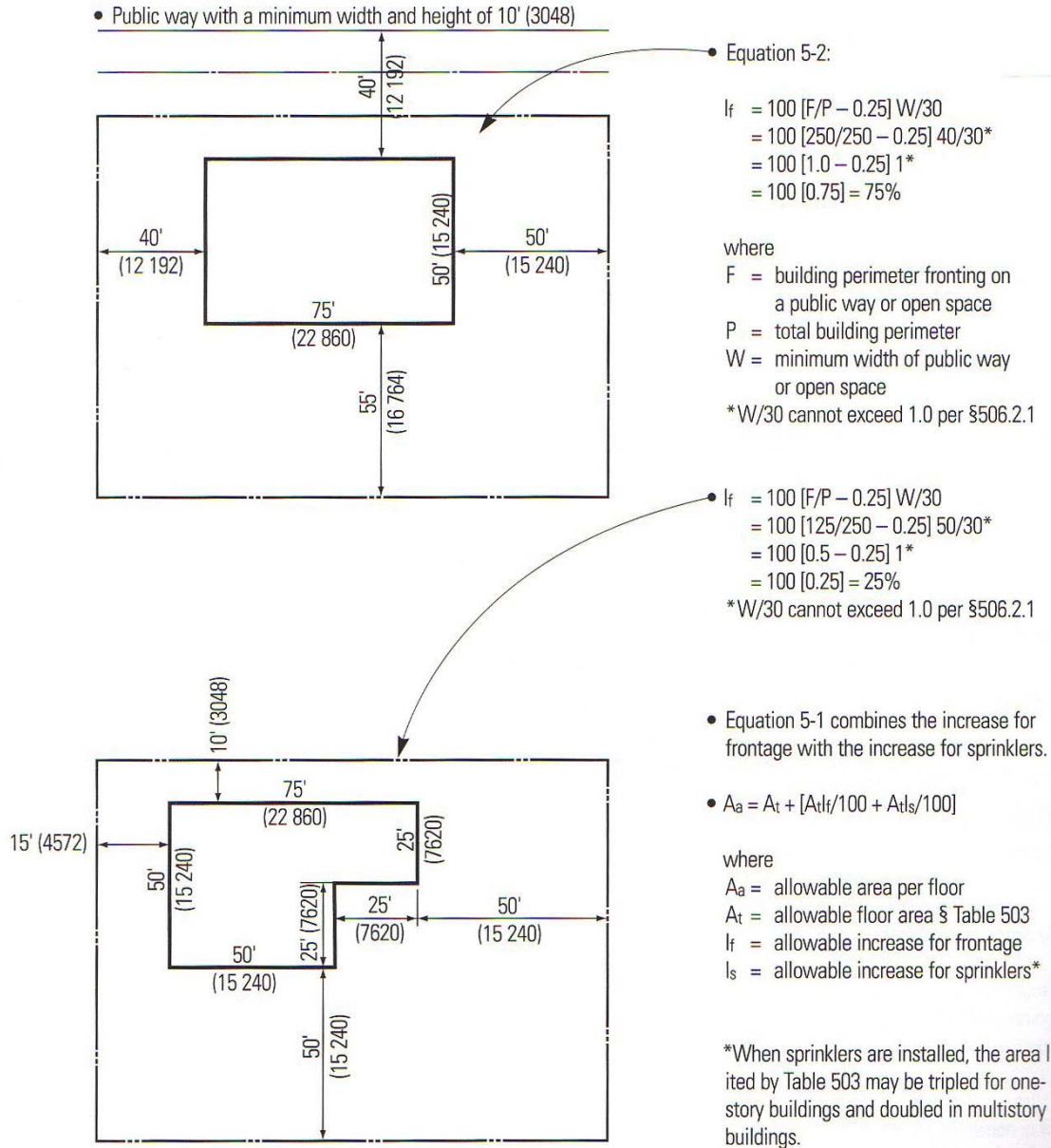


Figure 18: Area Modifications

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 51.

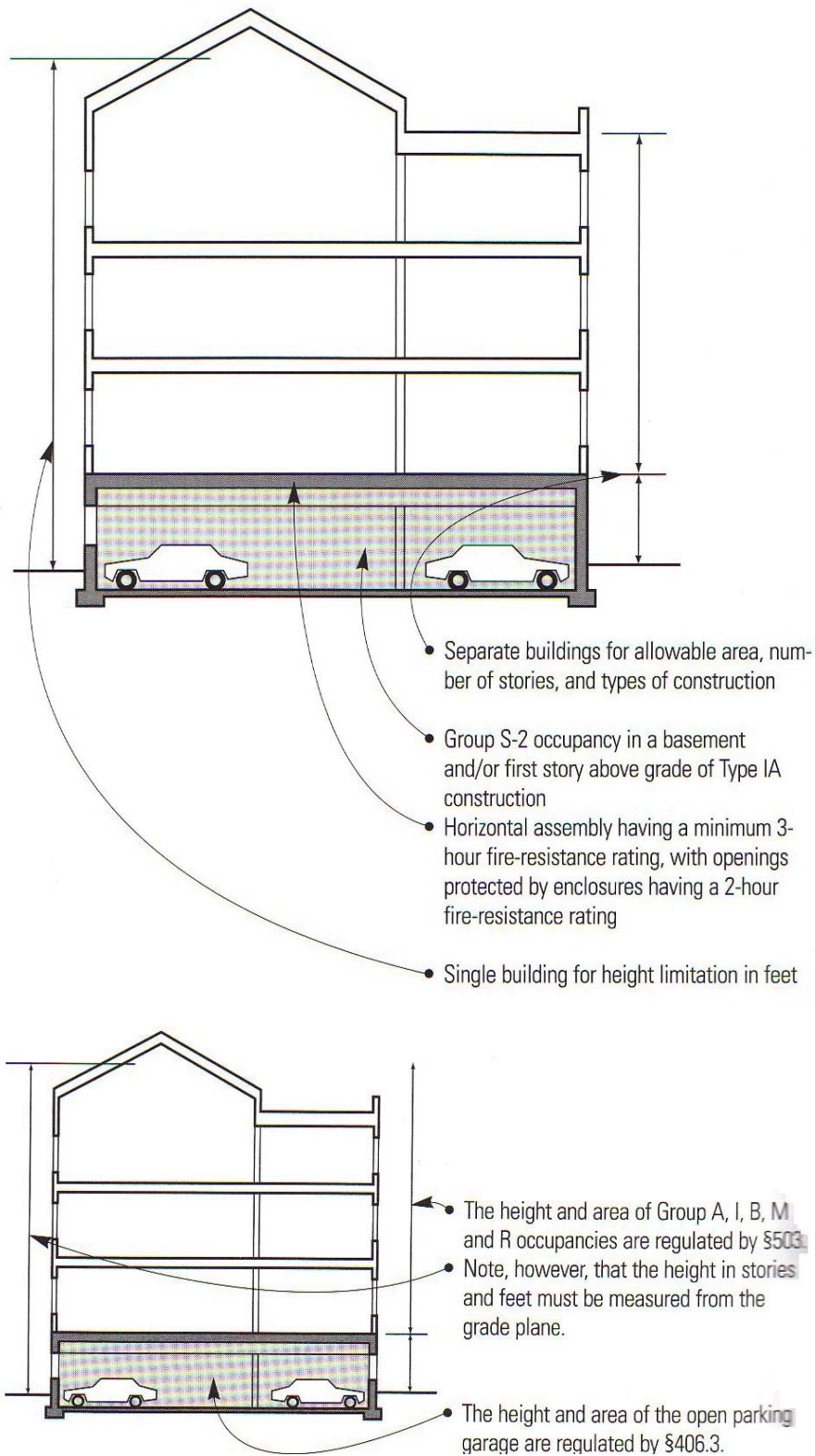


Figure 19: Special Provisions
 China. *Building Codes Illustrated: A Guide to Understanding the IBC*. 53-54.

Means of Egress

Chapter 10 of the IBC includes the requirements for means of egress, which are the exiting systems for buildings. This is a fundamental design element whose purpose is to allow for the safe and efficient evacuation of a building in case of a fire or other emergency. A means of egress must provide a continuous and unobstructed path of travel to an exit on a public way from any occupied point within a building. The three main components of a means of egress are the exit access, the exit and the exit discharge, which are illustrated in Figures 20 and 21. Design occupant load plays a role in determining the requirements for these three components. The occupant load is based on actual occupant loads when possible, such as when fixed seating exists, or else by using an occupant load factor in IBC Table 1003.2.2.2 that is based upon use. The occupant load determines the number and width of the exit components.¹⁴⁰

The exit access design includes requirements for the exits, number and arrangement of exit paths and travel distances. Figure 22 illustrates the exit from an occupied space. The table in Figure 23 specifies the required number of exits as well as the lengths of common paths of egress travel for the different occupancy groups. Common paths of egress travel are exit paths that must be shared by occupants before two separate paths of egress travel to two different exits are available. Figure 24 illustrates this concept. Group R requires one exit when there is a maximum occupant load of 10. Two exits are required when there are 11 – 500 occupants, three exits for 501 – 1,000 occupants and four exits for over 1,000 occupants. In terms of length of common egress travel, in a residential building, it is the same distance of 75 feet regardless if the building has sprinklers. It is important to measure this distance from the most remote point in the residence to the point where multiple paths to the exits are available, which is the common corridor.¹⁴¹

Shown in Figure 25, the overall allowed maximum exit-access travel distance for Group R is 200 feet, unless automatic sprinklers are present and then 250 feet is allowable. Figure 26 describes how this distance is measured; beginning from the most remote point in a building's occupied space to the entrance of an exit. It is a measure of the total distance an occupant must travel to reach the entry of the next higher level of

¹⁴⁰ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 135-138.

¹⁴¹ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 162.

protection, which is typically the exit. In the case of upper floors, the distance applies only until the occupant enters the protection of the exit stair enclosure that is considered as part of the exit.¹⁴²

The following table in Figure 27 is based on the IBC Table 1004.3.2.1 and provides information on the requirements for corridors within the exit access. The corridor is defined as an enclosed exit access component that defines and provides a path of egress travel to an exit. For Group R occupancy with an occupant load greater than ten, a 1-hour fire resistance rating is required in the corridor regardless of installation of sprinklers. It is noted that the corridors within a dwelling unit or guestroom are not required to have a fire-resistance rating, only between the dwelling units is it required. This table also specifies that the maximum dead-end corridor distance is 20 feet, displayed by Figure 28, and that the minimum corridor width within a residential dwelling unit is 36 inches.¹⁴³ Figure 29 indicates the requirements when using egress balconies. Exterior balconies can be used in lieu of the corridor for egress in the exit access provided that the long side of the balcony is 50% open and arranged to minimize the accumulation of smoke or toxic gases. The minimum requirements for clearance, width and dead ends are the same as the corridors.¹⁴⁴

The exit is the intermediate segment of the means of access linking the exit-access to the exit discharge. The requirements for exits include the level of fire-resistance, the dimensions and the occupant capacity. Exits differ from exit-access areas because they are typically only used for exiting purposes, unlike corridors that also serve as circulation areas during regular building use. Figure 30 designates the exit design requirements.¹⁴⁵ The vertical exit component can be either an interior or exterior stair provided certain requirements are met. As Figure 31 shows, an exterior stair must have an aggregate open area of at least 35 square feet on one side at each floor. This can easily be achieved with a clerestory opening that minimizes the security risk of an exterior stair. Typically, an exterior stair must be separated from the building interior except for the

¹⁴² Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 165-166.

¹⁴³ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 170.

¹⁴⁴ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 172.

¹⁴⁵ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 173.

access door. One of the exceptions, illustrated in Figure 31, is the connection of the exterior stair to an exterior egress balcony that connects two remote exterior stairways.¹⁴⁶

The exit discharge is the final portion of the means of egress. It begins once the occupants leave the exit and ends once they enter the public right of way. The exit discharge may lead through an egress court, which is a court or yard that provides access to a public way. The exit discharge must be at grade, may not reenter the building and must be separated from adjacent properties as shown in Figure 32.¹⁴⁷

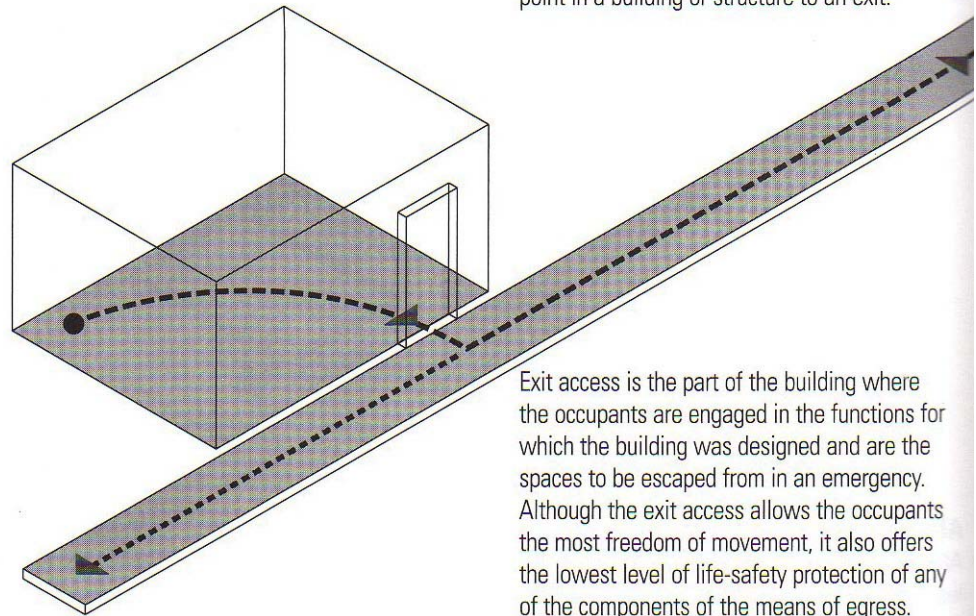
In addition to the three means of egress components, residential occupancies are required to have egress openings for emergency escape and rescue in sleeping rooms below the fourth story and basements. These spaces are required to have at least one opening that opens directly onto a public street, public alley, yard or court. Figure 33 gives the required dimensions for these openings.¹⁴⁸

¹⁴⁶ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 181.

¹⁴⁷ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 183.

¹⁴⁸ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 186.

1. EXIT ACCESS is that portion of the means-of-egress system that leads from any occupied point in a building or structure to an exit.

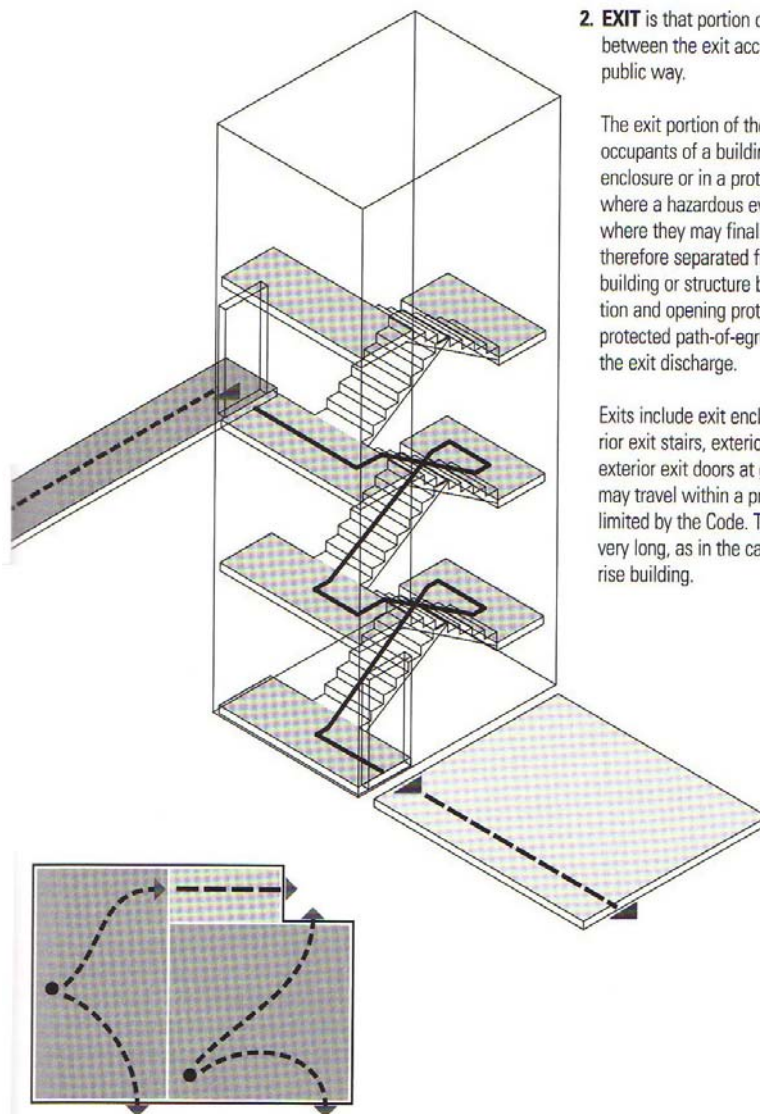


- It is important to remember that the distance one may travel in an exit access, from the most remote point in the room or space to the door of an exit, is regulated by the Code. It may be necessary to provide a fire-rated passage, such as an exit passageway, for larger floor areas that may exceed the travel distances for various other means-of-egress components.
- Travel distances are not restricted in exits or in the portion of the exit discharge located at grade.

In the typical exit path from a room or space, one may encounter aisles, passages, corridors or other rooms before gaining access to a protected fire-rated enclosure called the exit. The distance to be traversed is limited by the Code as will be covered in this analysis.

Figure 20: Egress Components

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 138.



2. EXIT is that portion of the means-of-egress system between the exit access and the exit discharge or the public way.

The exit portion of the means of egress allows the occupants of a building to move through a protected enclosure or in a protected environment from the area where a hazardous event is occurring to a place where they may finally escape the building. Exits are therefore separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path-of-egress travel from the exit access to the exit discharge.

Exits include exit enclosures, exit passageways, exterior exit stairs, exterior exit ramps, horizontal exits and exterior exit doors at ground level. The distance one may travel within a protected exit enclosure is not limited by the Code. This part of the exit path can be very long, as in the case of the stairways in a high-rise building.

3. EXIT DISCHARGE is that portion of the means-of-egress system between the termination of an exit and a public way. The exit discharge may include exterior exit balconies, exterior stairs, exterior exit ramps, exit courts and yards. Many of these are building-related components, but an exit discharge may also include site elements.

This portion of the means of egress is basically assumed to be at or near grade and open to the atmosphere. The occupants are able to clearly see where an area of safety outside the building lies and are able to move toward it.

The Code defines "public way" as any street, alley or other parcel of land open to the outside air leading to a street that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and having a clear width and height of not less than 10' (3048).

- The means of egress for a small single-story building is usually simple, because the second and third components of the exit path are often combined.
- In many one-story buildings, such as retail stores and banks, only the first portion of the means of egress exists. A corridor may extend to the exterior wall and open onto a street, yard or other public space. This simultaneously provides the exit access, the exit and the exit discharge to the exterior public way of the building at ground level. The room or space opens directly to the building's exterior without the need of protected corridors or stairways.

Figure 21: Egress Components

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 139.

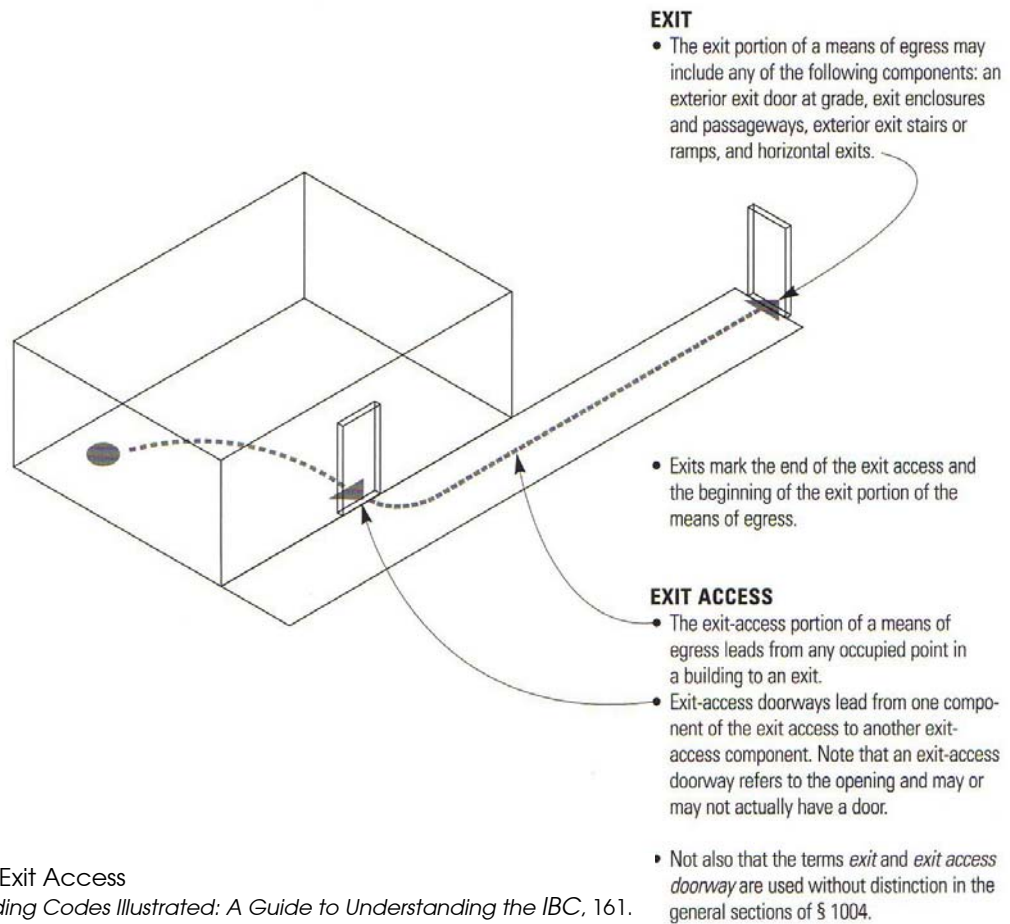
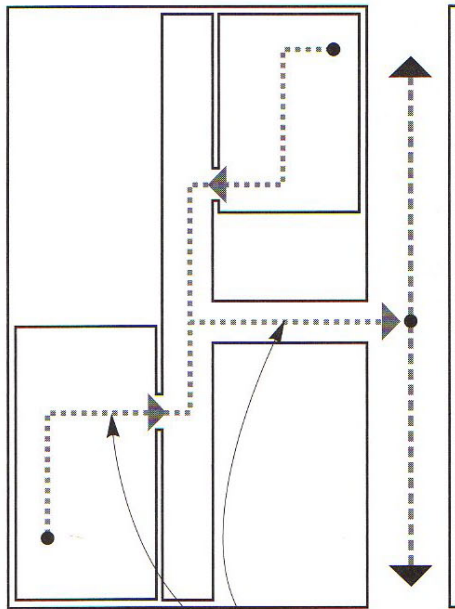


Figure 22: Exit Access
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 161.

Occupancy	Per Table 1005.2.1				Per Section 1004.2.5	
	Maximum Occupant Load w/ 1 Exit	Minimum No. of Occupants with 2 Exits	No. of Occupants Requiring 3 Exits	No. of Occupants Requiring 4 Exits	Length of Common Path-of-Egress Travel** before 2 Paths of Egress Travel are Required	
All	—	Up to 500	501–1,000	> 1,000	Nonsprinklered	Sprinklered
A, E	50	51–500	"	"	75 (22 860)	75
B, F	50	51–500	"	"	75*	100
H-1, 2, 3	3	4–500	"	"	25 (7620)	25
H-4, 5	10	11–500	"	"	75	75
I-1	10	11–500	"	"	75	75
I-2	Per § 1004.2.3.2	1–500	"	"	75	75
I-3	10	11–500	"	"	100 (30 480)	100
I-4	10	11–500	"	"	75	75
M	50	51–500	"	"	75	75
R	10	11–500	"	"	75	75
S	30	31–500	"	"	75*	100
U	50	51–500	"	"	75*	75*

* Tenant spaces with an occupant load of less than 30 may have a common path-of-egress travel up to 100 feet (30 480).

Figure 23: Exit Access
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 162.



• A common-path-of-egress travel is any portion of an exit access offering an occupant no choice between separate and distinct paths of egress travel to two exits. It is measured from the most remote point in a room to that point where multiple paths to separate exits are available to occupants.

• Common-paths-of-egress travel include paths that split and merge within the exit access prior to the location where multiple paths lead to separate exits.

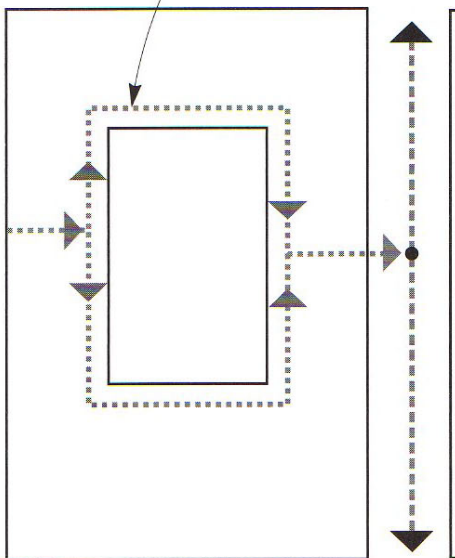


Figure 24: Common-Path-of-Egress Travel
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 167.

EXIT ACCESS

For most occupancies, the allowable exit-access travel distance is 200' (60 960) without a sprinkler system and from 250' to 300' (76 200 to 91 440) with a sprinkler system. The table below graphically represents the relative lengths of exit-access travel allowable for various occupancies.

Note that allowable exit access travel distances are increased in buildings with automatic sprinkler systems. This provision acknowledges the increased level of safety for occupants in sprinklered buildings. Note also that there are numerous footnotes to Table 1004.2.4 regarding occupancy-specific travel distances in such specialized building types as covered malls, atriums and assembly spaces.

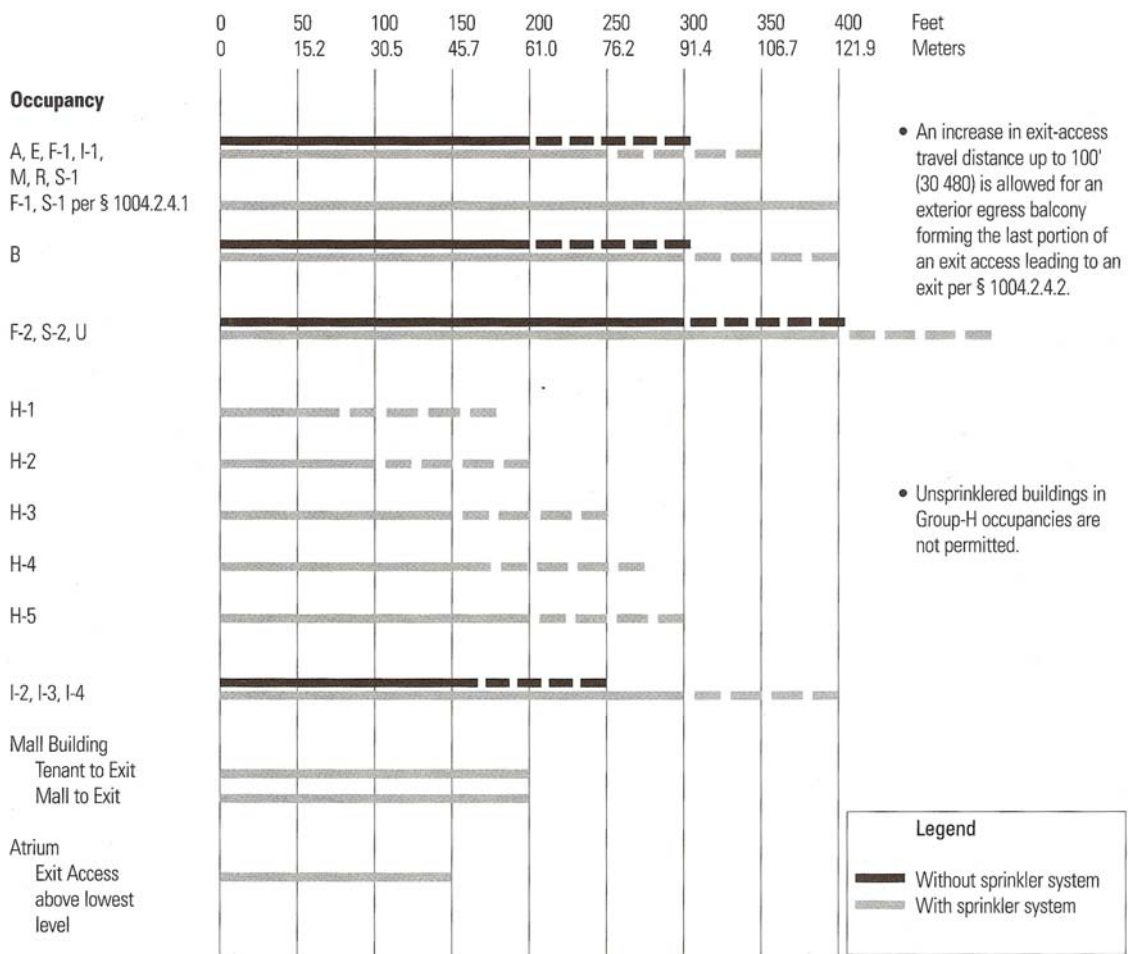


Figure 25: Exit Access

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 166.

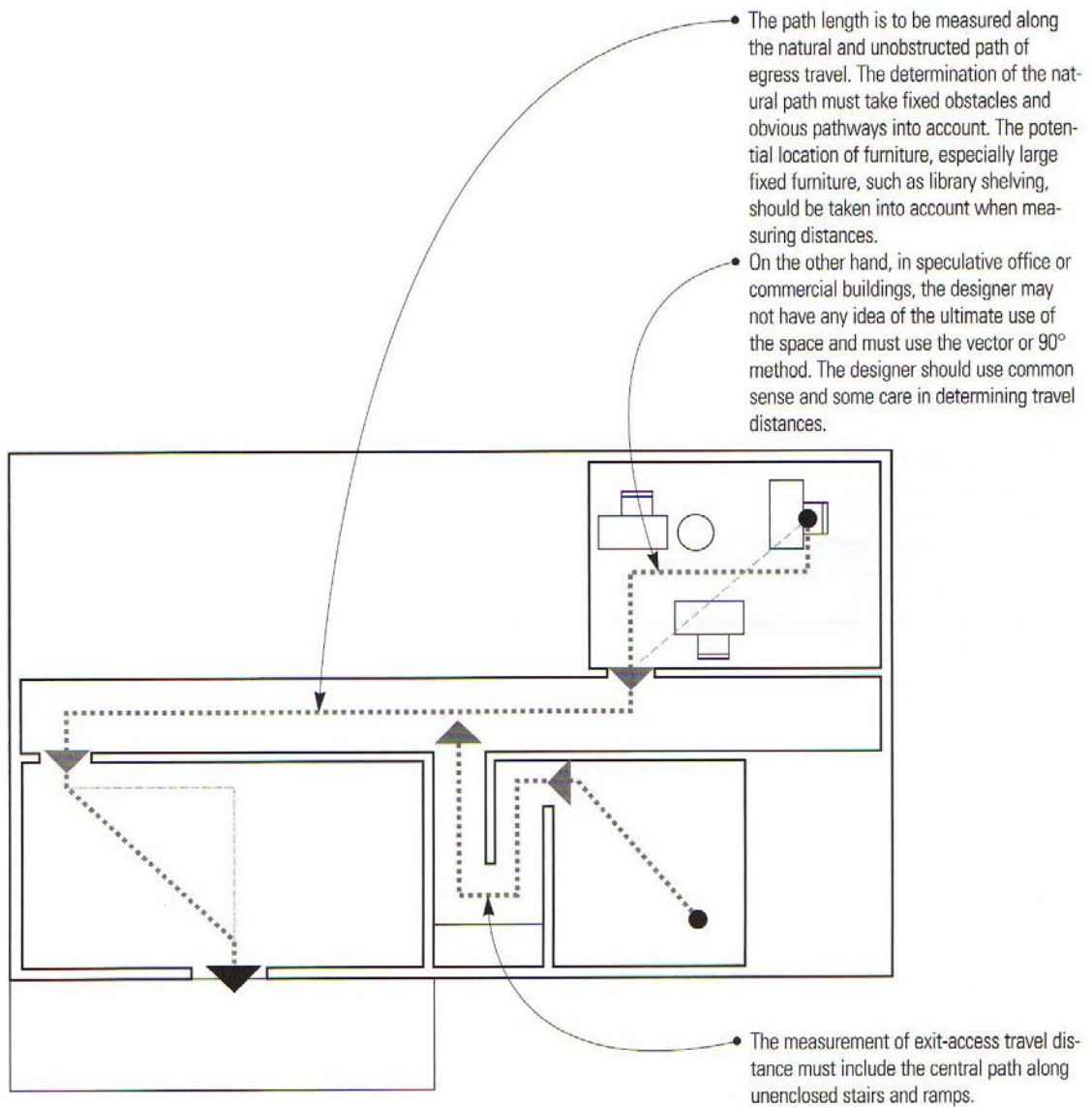


Figure 26: Exit Access Travel Distance
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 165.

Occupancy	Corridor Required for Occupant Load	Fire-Resistance Rating Without Sprinklers	Fire-Resistance Rating With Sprinklers	Notes	Dead-End Distance [20' (6096) typical]	Minimum Corridor Width Per Table 1003.2.3; 44" (1118) typical
A, B, F, M, S, U	>30	1	0	No rating in open parking garages	50' (15 240) @ B & F when sprinklered	
E	>30	1	0	No rating if one door opens to outside		72" (1829) when occupant capacity >100
R	>10	1	1	No rating at corridors inside dwelling unit or guestroom		36" (914) within dwelling unit
H-1, H-2, H-3	All	1	1			
H-4, H-5	>30	1	1			
I-2 ¹ , I-4	All	Not permitted	0	1. See § 407.3		72" (1829) when serving surgeries; 96" (2438) in I-2 when required for bed movement
I-1, I-3	All	Not permitted	1 ²	2. See § 408.7	50' (15 240); see § 1004.3.2, Exception 1 (only @ I-3)	
All					Unlimited when dead-end is less than 2 1/2 times corridor width	24" (610) typical for mechanical access; 36" (914) with < 50 occupants

Figure 27: Exit Access Corridors
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 170.

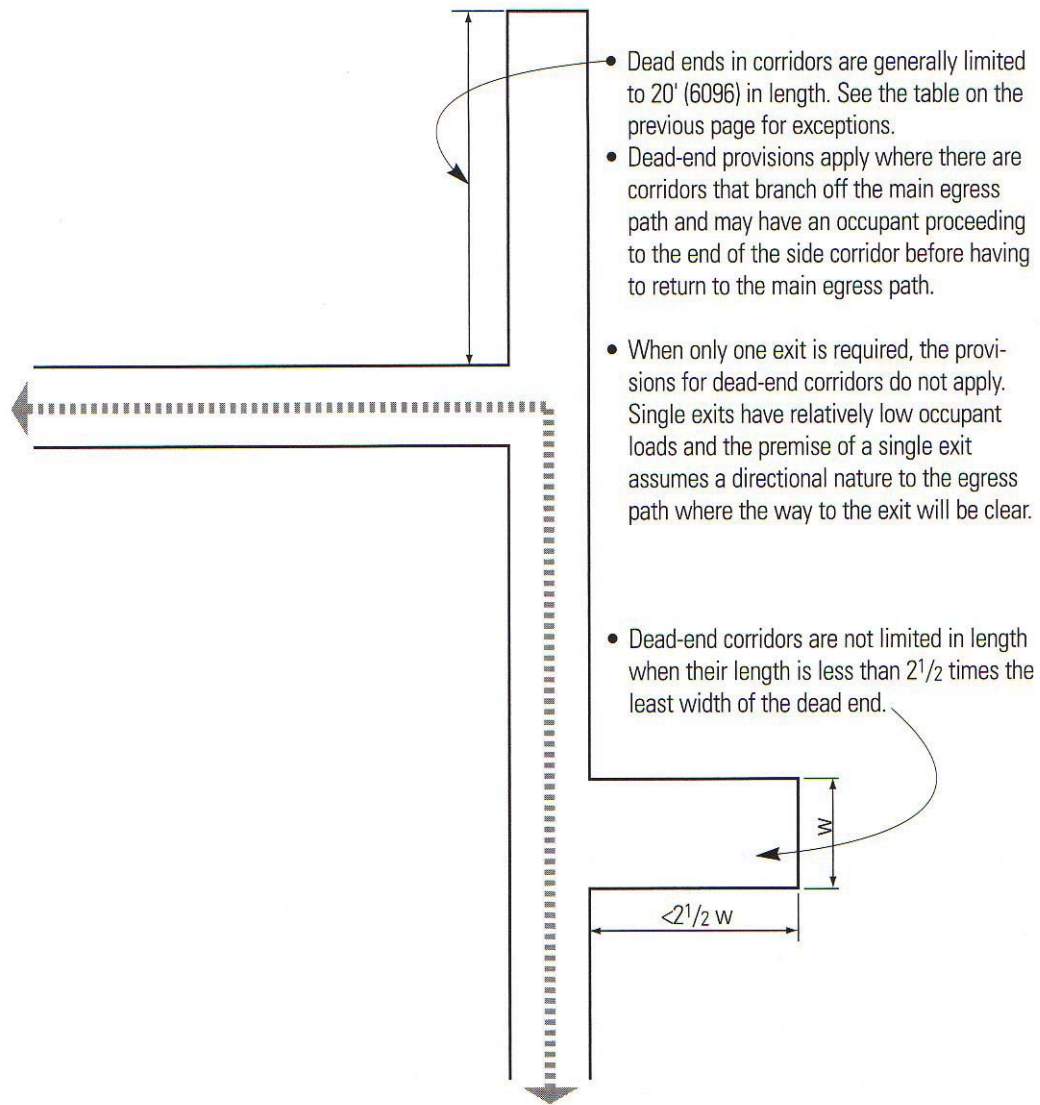


Figure 28: Exit Access Dead Ends
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 171.

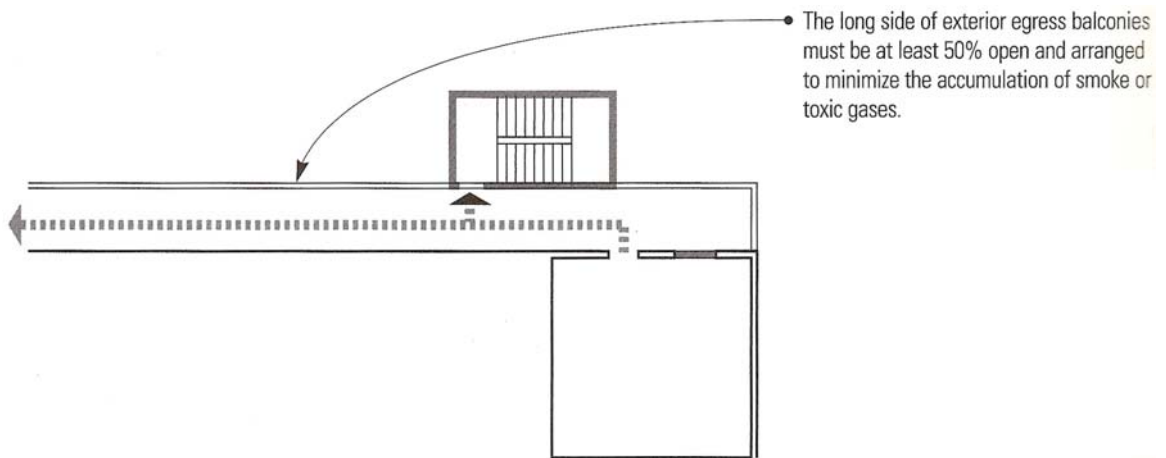


Figure 29: Exit Access Egress Balconies
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 172.

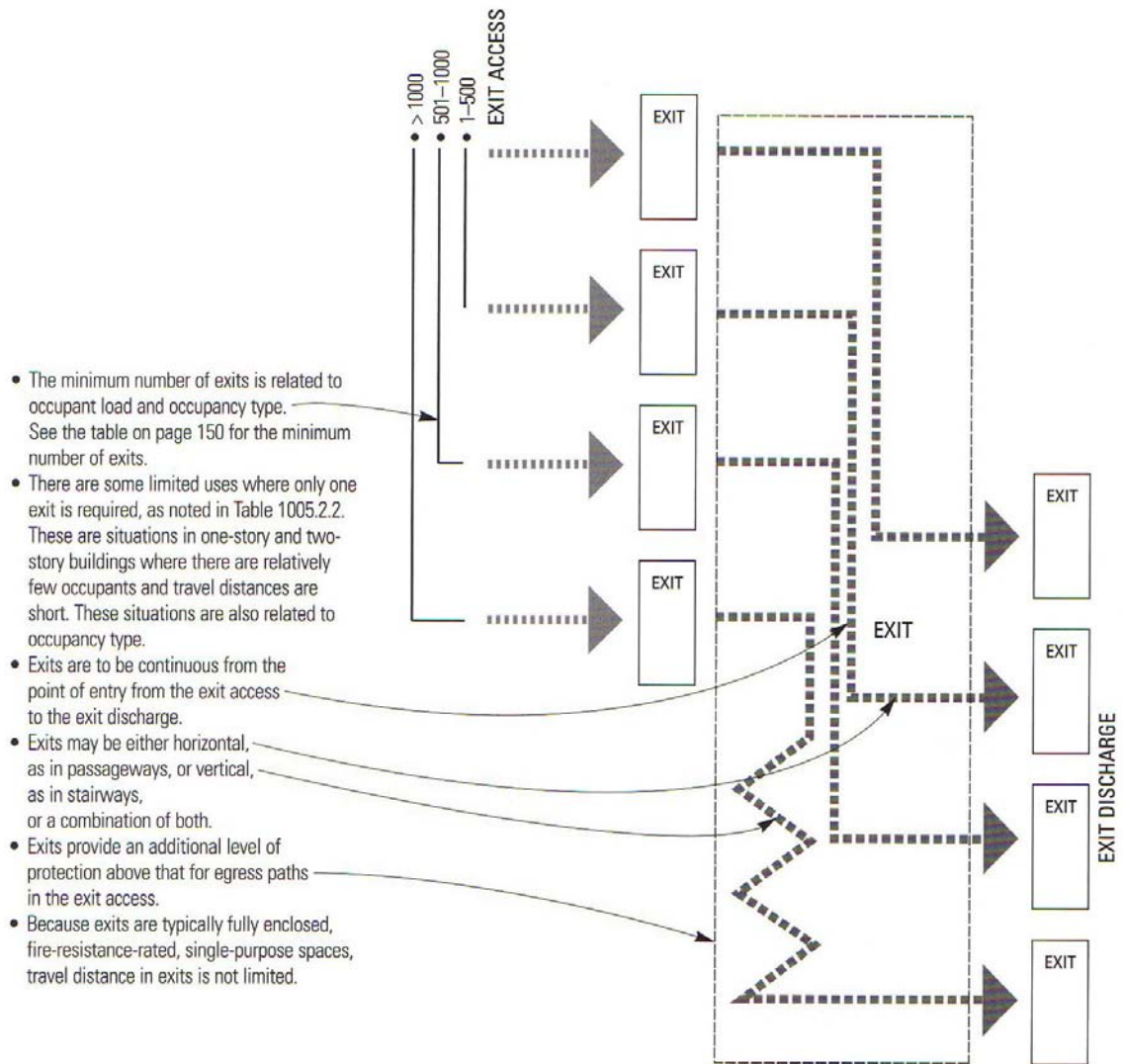
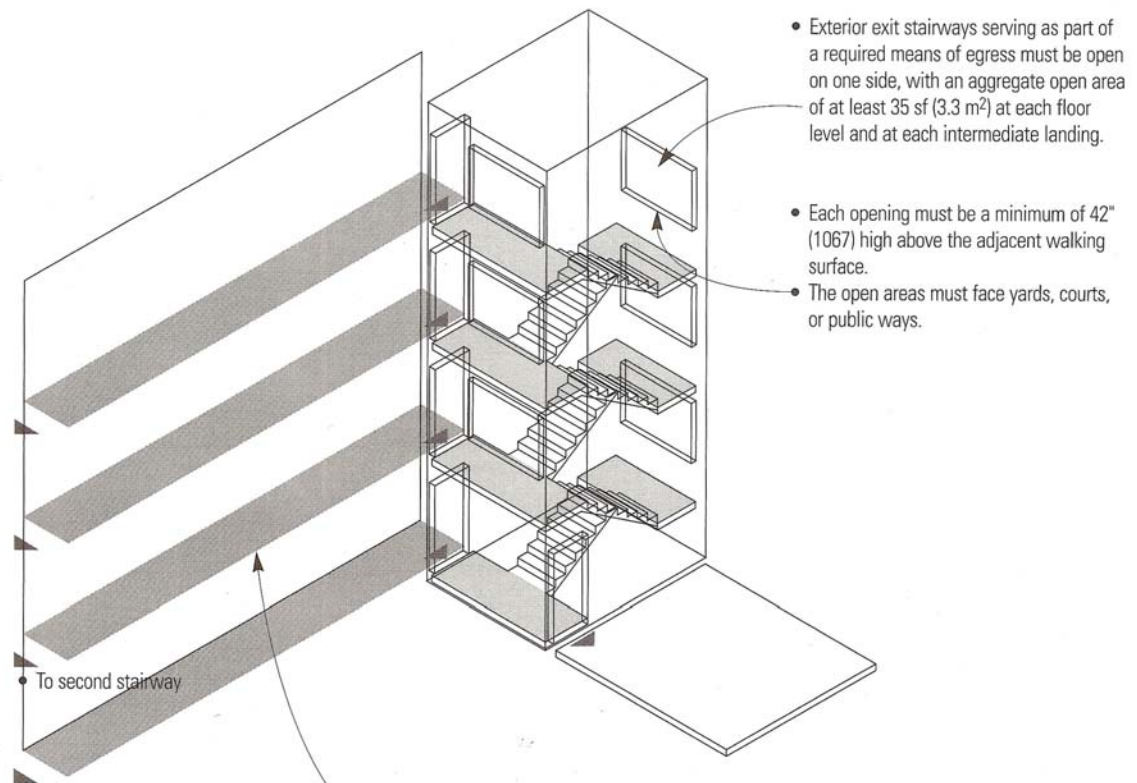


Figure 30: Exit Design Requirements
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 173.



- Exterior exit stairways serving as part of a required means of egress must be open on one side, with an aggregate open area of at least 35 sf (3.3 m²) at each floor level and at each intermediate landing.

- Each opening must be a minimum of 42" (1067) high above the adjacent walking surface.
- The open areas must face yards, courts, or public ways.

Exterior exit stairways are to be separated from the building interior per § 1005.3.2, with openings limited to those necessary for exit access. The exceptions to this protection requirement are:

1. In other than Group R-1 or R-2 occupancies, in buildings no more than two stories above grade, and where the exit discharge is at the first story, no protection is required. The path of travel is only one story high and is considered short enough to not need protection.
2. When there is an exterior egress balcony that connects two remote exterior stairways with a 50% open balcony and openings at least 7' (2134) above the balcony, protection is not required. This recognizes the inherent safety of having two means of egress from the balcony as well as the protection afforded by the openings, which minimize the chance of heat or toxic gases being trapped in the egress path.
3. Exterior stairs need not be protected where interior stairways may also be unprotected per § 1005.3.2.

Figure 31: Exterior Exit Stairways

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 181.

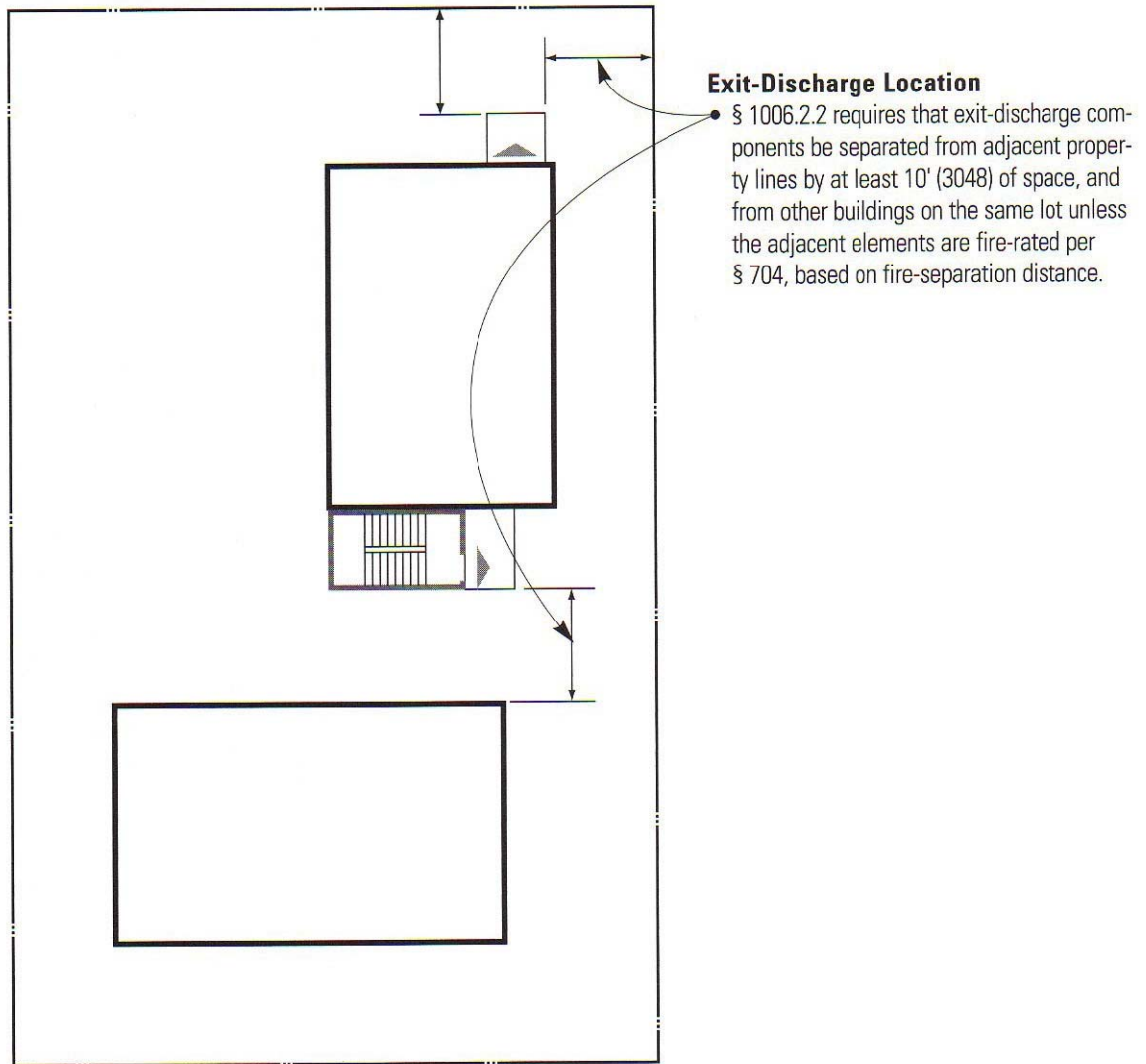


Figure 32: Exit Discharge
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 184.

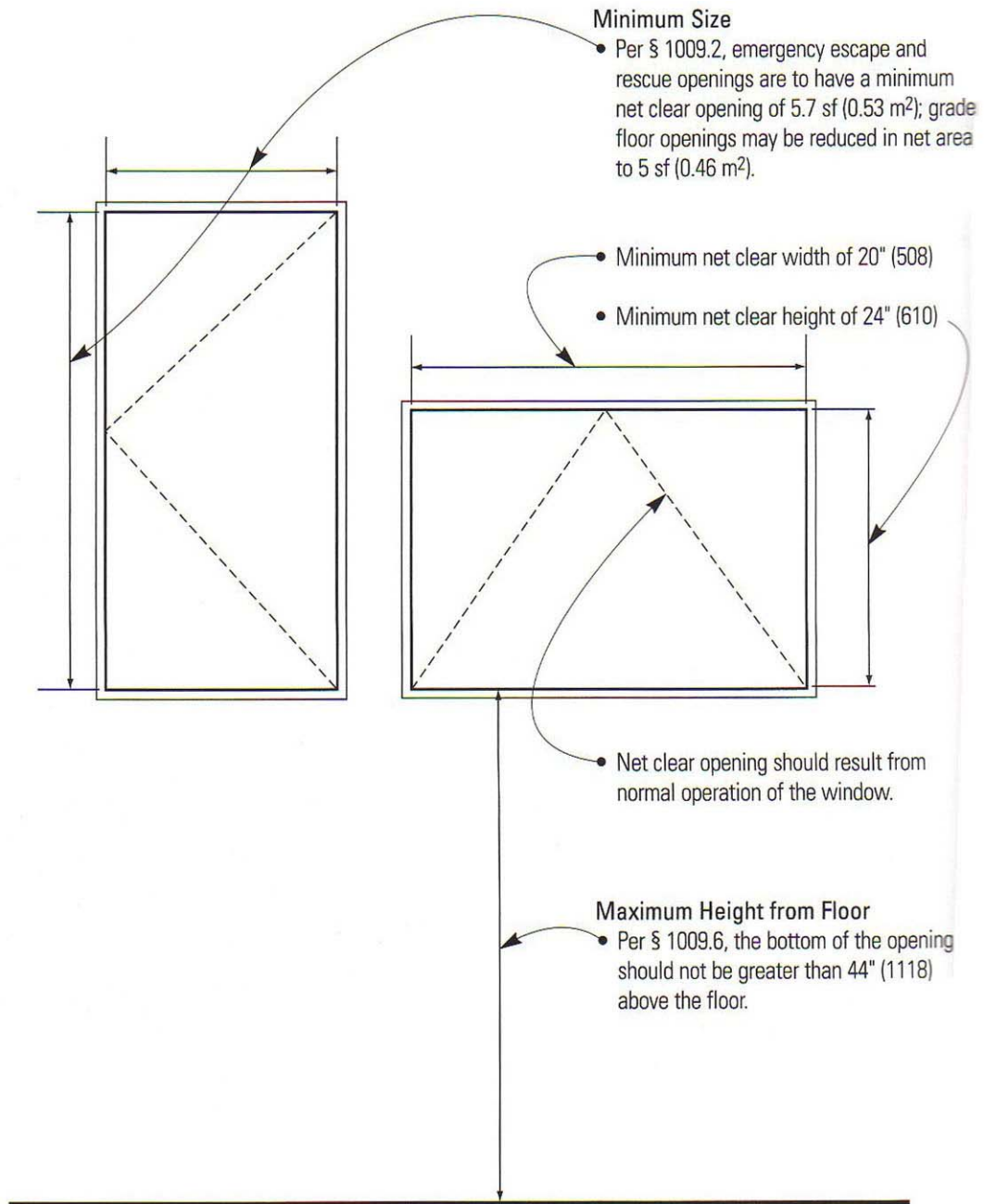


Figure 33: Emergency Escape
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 186.

Accessibility

Making buildings accessible to persons with disabilities is an important design requirement. The Americans with Disabilities Act (ADA) of 1990 set forth ADA Accessibility Guidelines (ADAAG) for use by designers that must be met by law for ADA compliance. One of the ADA requirements is to provide an accessible route for persons with disabilities to enter a building; access function spaces within a building, including support functions such as toilets, telephones and drinking fountains, and to exit a building. Figures 34 and 35 illustrate the concept of accessible route. Figure 36 describes accessible building entrance conditions. At least one main entrance and at least 50% of the total entrances must be accessible. The accessible parking requirements are determined by total number of parking stalls in a given project. IBC Table 1106.1 stipulates the exact number to be provided. Figure 37 features additional stall requirements and the dimensions for accessible stalls.¹⁴⁹

Supplementary accessibility requirements are established for some of the occupancy groups including Group R. The intent of these requirements for Group R in relation to this project is that the multifamily dwelling be accessible to the maximum extent that is practical, and that there are enough units to meet the anticipated demand by people with disabilities. There are two types of accessible dwelling units: Type A and Type B. Type A is a unit that is fully accessible whereas Type B is adaptable or accessible-ready meaning that with minor modifications, it can be accessible. Typical construction features that allow conversion without major remodeling are convertible cabinetry and wall blocking for grab bars. Figures 38 and 39 describe the required number of Type A and B units for occupancy Group R-2 and exceptions depending on building type.¹⁵⁰

¹⁴⁹ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 188-195.

¹⁵⁰ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 199.

- The basis of accessible design is the idea of an accessible route. The definition of *accessible route* in § 1102.1 uses the words *continuous* and *unobstructed*. Any usable path for people with disabilities must not cut them off from the spaces or elements of the building that they have a right to use. This route is often referred to in other code sections or access documents as the path of travel.

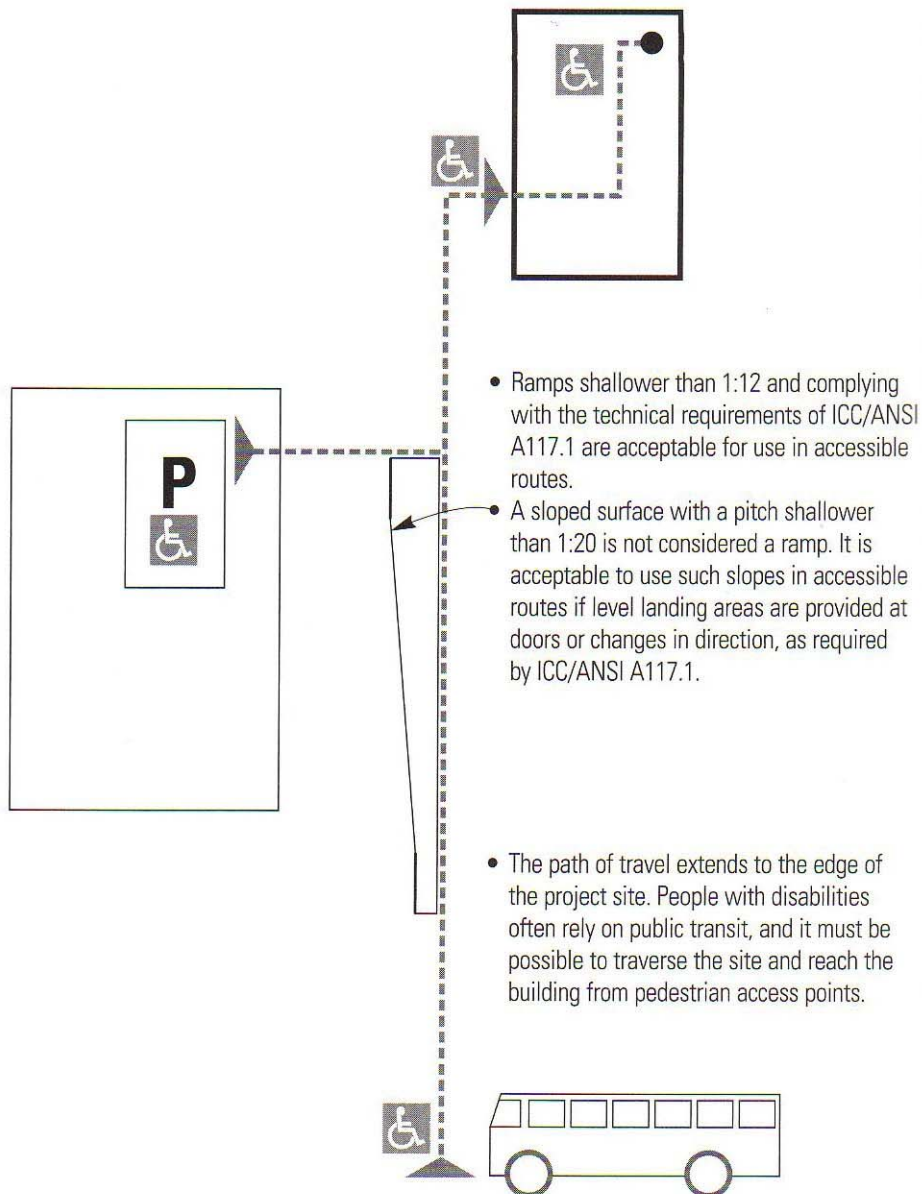


Figure 34: Accessible Route
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 190.

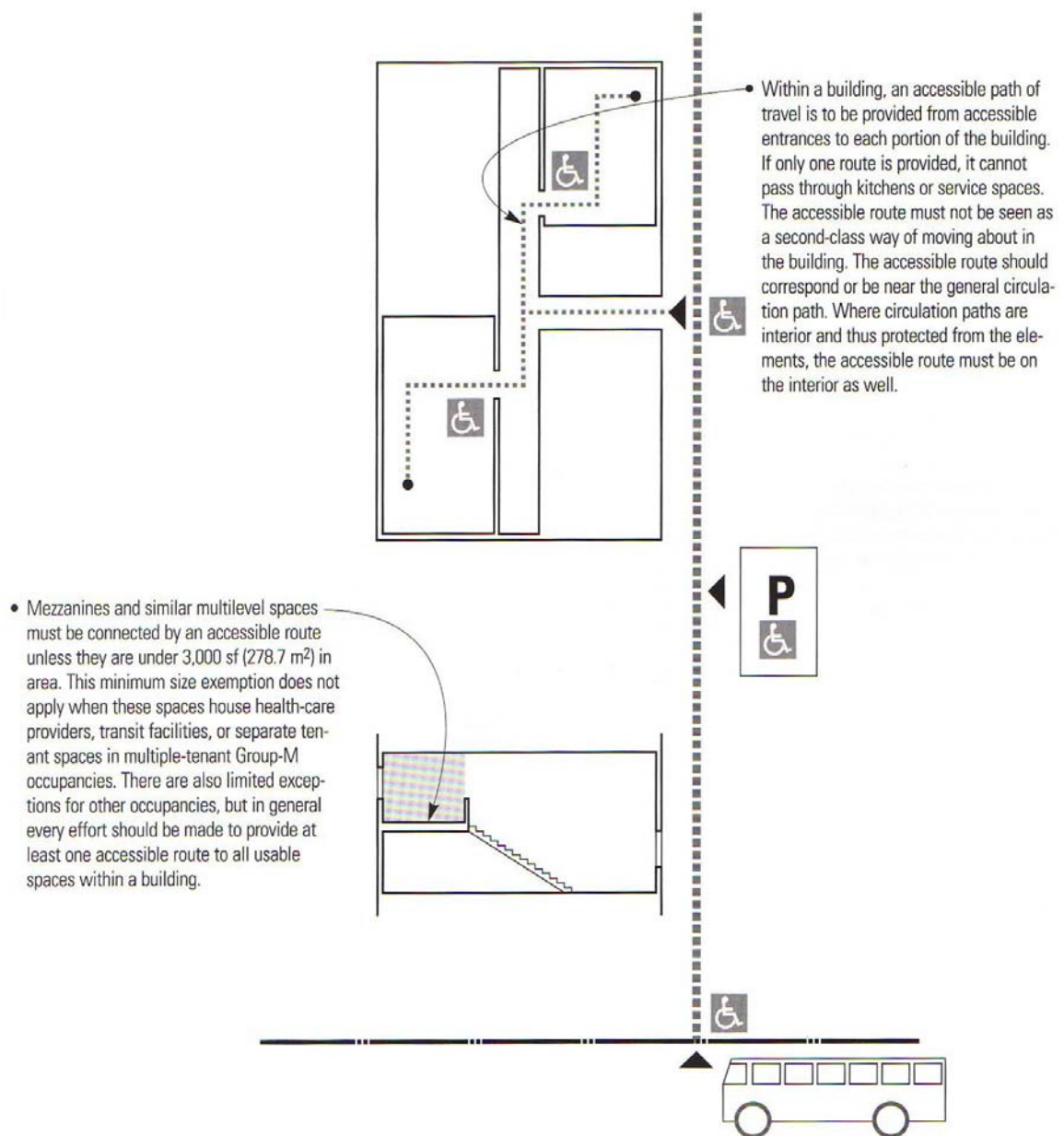


Figure 35: Accessible Route
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 193.

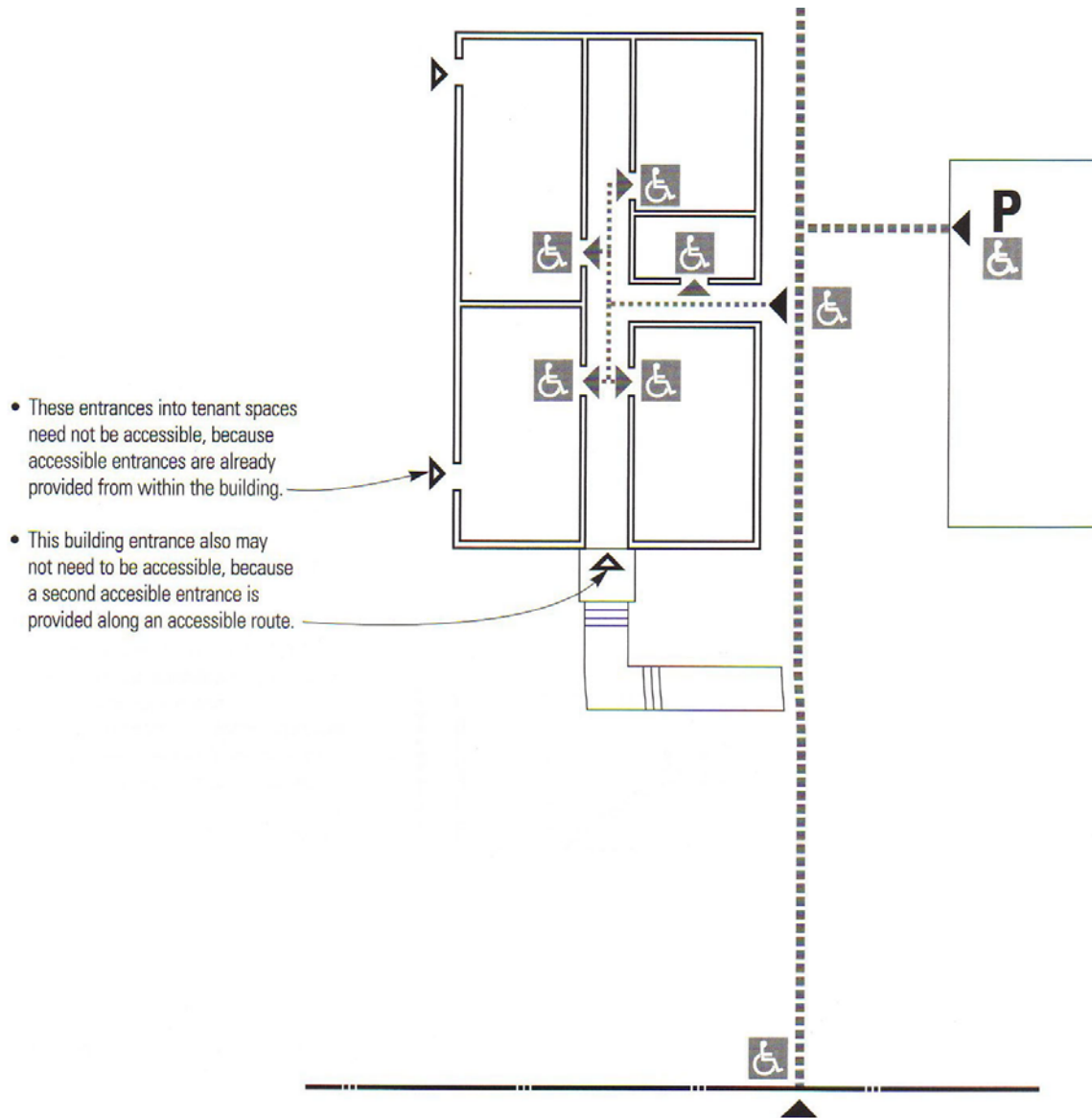


Figure 36: Accessible Entrances
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 194.

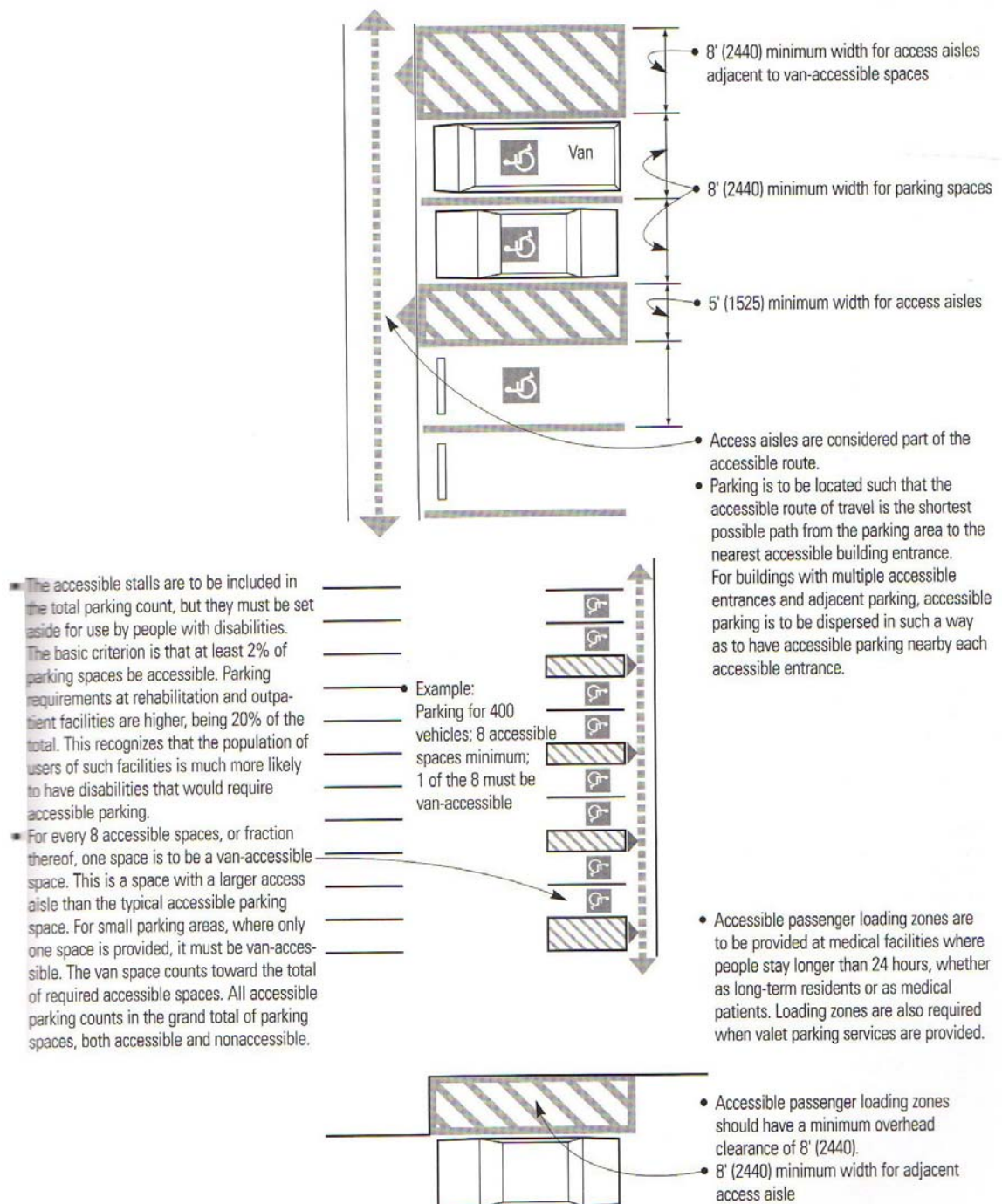


Figure 37: Accessible Parking and Passenger Loading
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 195.

Accessible Dwelling Units

§ 1107.5.4 divides Accessible Dwelling Units into either Type A or B dwelling units.

- Type A units are described in ICC/ANSI A117.1 and are meant to be fully accessible.
- Type B units are also described in the standard, but are defined to comply with the technical requirements of the Federal Fair Housing Act Guidelines administered by the Department of Housing and Urban Development (HUD). Type B dwelling units therefore provide a minimum level of accessibility and are more easily thought of as adaptable units where minor modifications may be made to make them more accessible, if necessary, to accommodate disabled occupants.
- § 1107.5.4 requires every dwelling unit to be a Type B dwelling unit in residential occupancies, such as Group R-2 and R-3 occupancies, where there are more than four dwelling units.
- As buildings get larger, Type A dwelling units are required. For example, in Group R-2 occupancies containing more than 20 dwelling units, at least 2%, but not less than one, of the dwelling units must be a Type A dwelling unit. Because they have a higher degree of accessibility, Type A units may be substituted for Type B units, but not vice-versa.

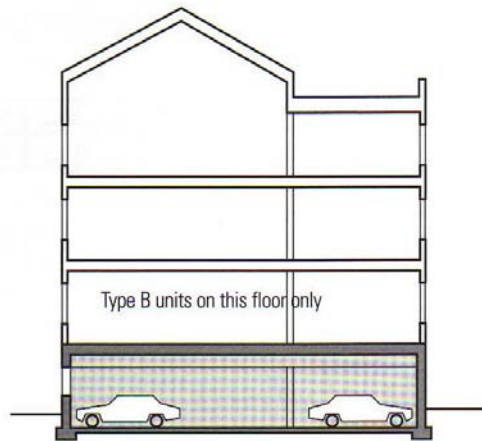


Figure 38: Accessible Dwelling Units

Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 199.



1. In walk-up type buildings, where no elevator is provided, neither Type A nor Type B dwelling units need be provided on floors other than the ground floor. The number of Type A dwelling units is to be provided based on the total of all units in the building, not just at the ground floor. It should be assumed that in buildings with more than 4 and less than 20 units, the ground-floor units should all be Type B units.



2. In podium type buildings without elevators, where the dwelling units occur only above the ground floor, only the dwelling units on the lowest floor need comply with the requirements of this section. Thus on the lowest level of a building with 4 to 20 units, all of the units on the lowest level of dwelling units need be Type B units, but only on that level. When the total dwelling unit count exceeds 20, then Type A dwelling units would need to be provided as required in this section, but again only on the lowest dwelling unit level.

Figure 39: Accessible Dwelling Units
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 200.

Interior Space Dimensions

The interior environment is an important code factor whose requirements determine appropriate air quality; thermal, visual and auditory comfort; and sizes of spaces to be occupied. In terms of the ventilation, if a building is not slab-on-grade, the space between the joists and the earth must be ventilated as shown in Figure 40. If a project is to be naturally ventilated, it must meet the standards given in Figure 41 to ensure that habitable spaces are provided with light and air, even if they are windowless. Figures 42 and 43 highlight the requirements to provide natural or artificial light within the habitable spaces. Sound transmission can impact the quality of life of those living in multitenant conditions. Criteria is established using American Society for Testing and Materials (ASTM) test criteria to reduce sound transmission at walls and floor/ceiling assemblies between adjoining dwelling units. The interior space requirements are aimed at providing adequate space for all occupied rooms. Figures 44 – 46 give the dimensions for specific rooms.¹⁵¹

¹⁵¹ Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 220-224.

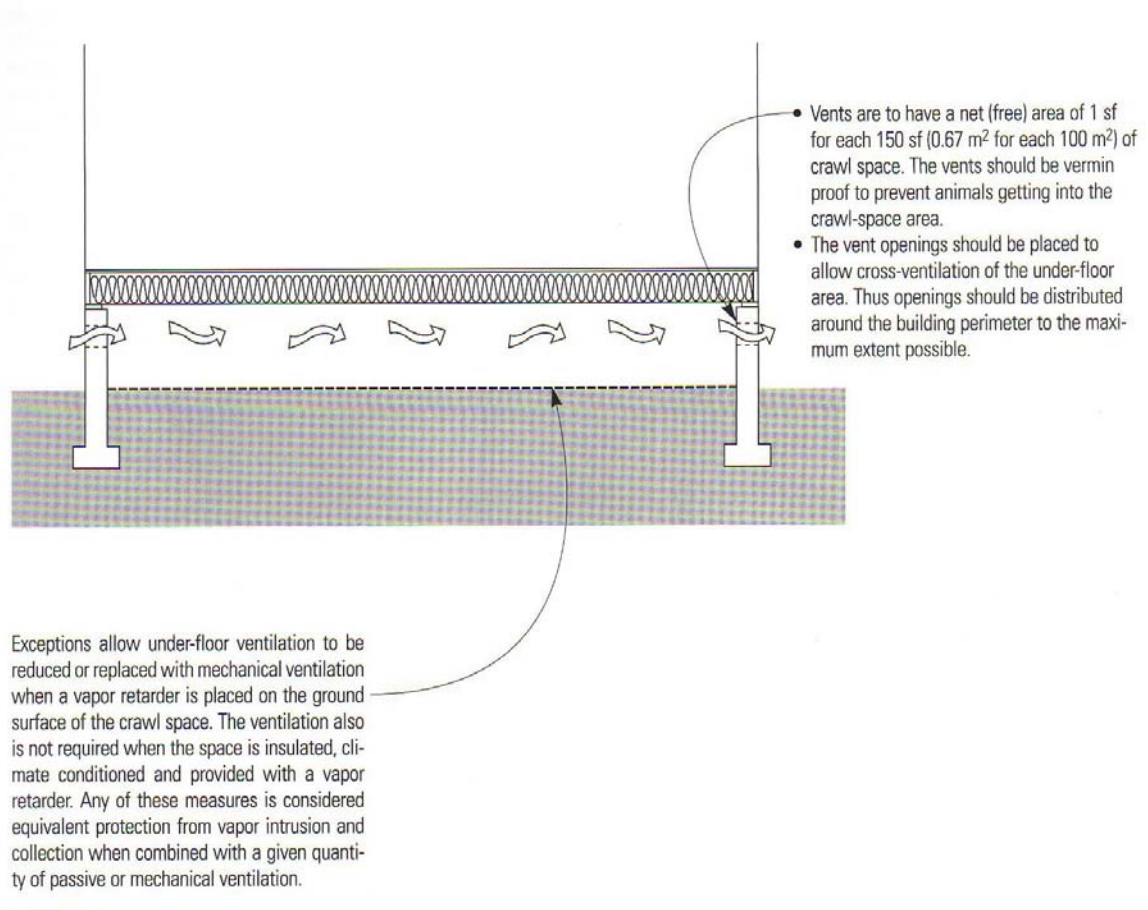


Figure 40: Under-Floor Ventilation
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 220.

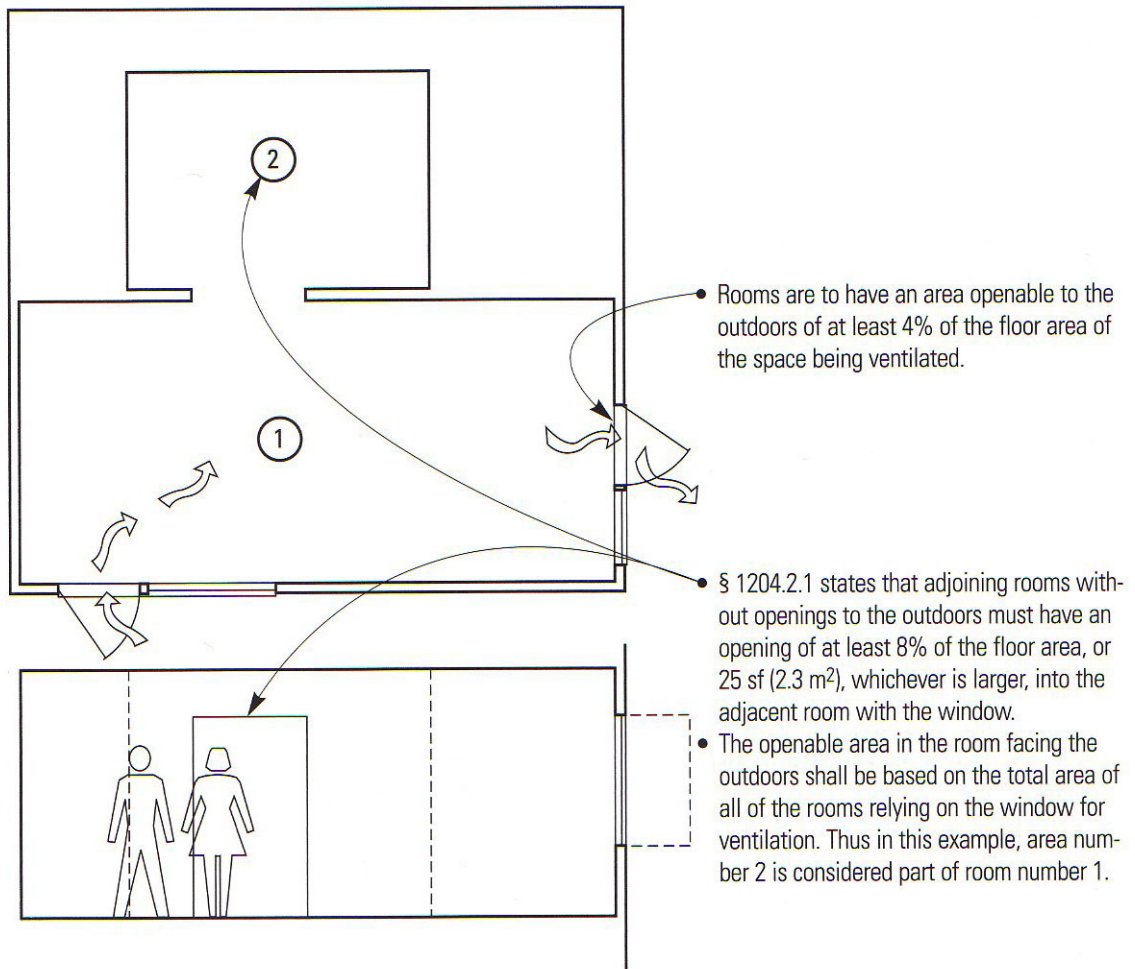


Figure 41: Natural Ventilation
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 221.

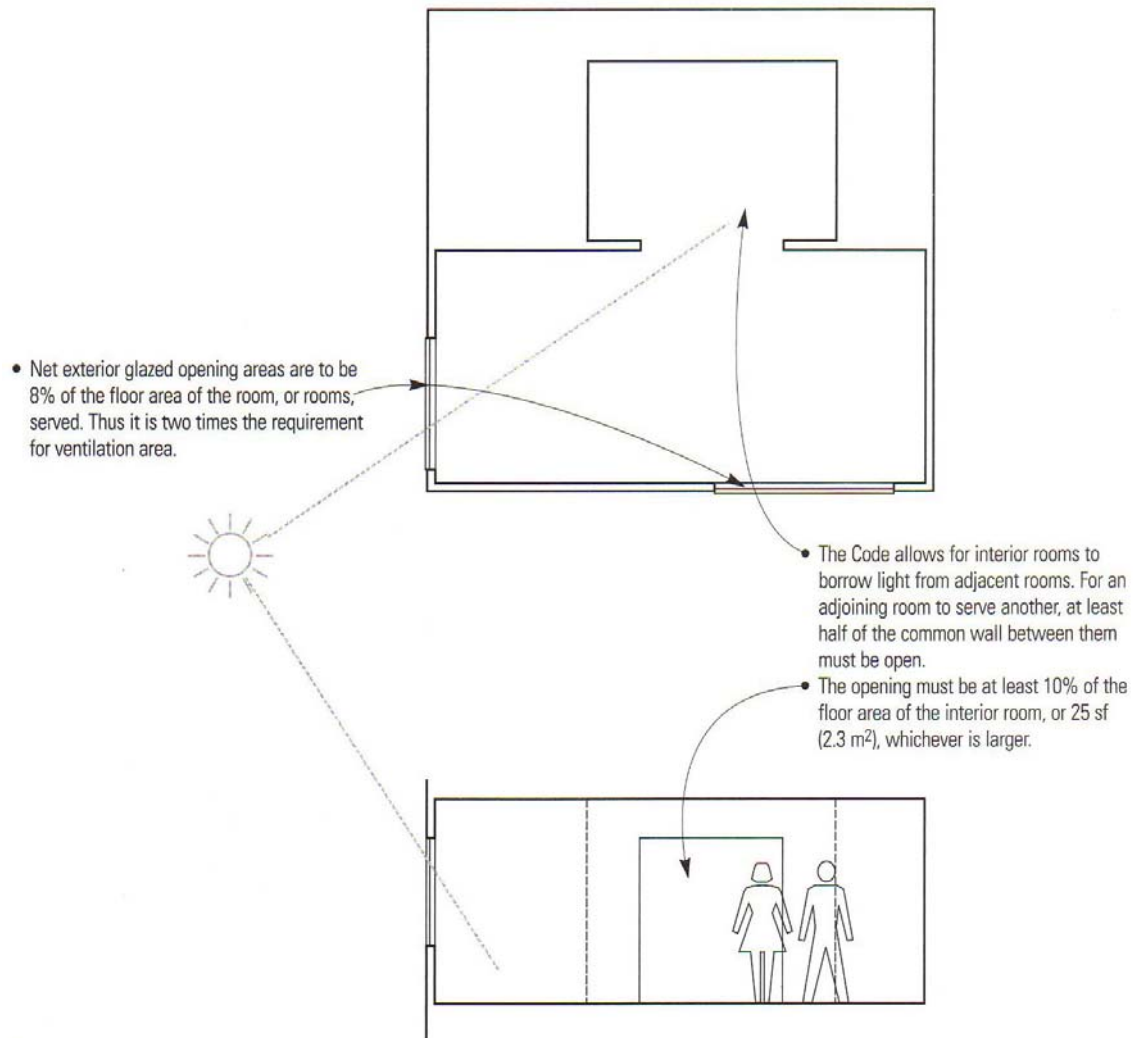


Figure 42: Lighting
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 222.

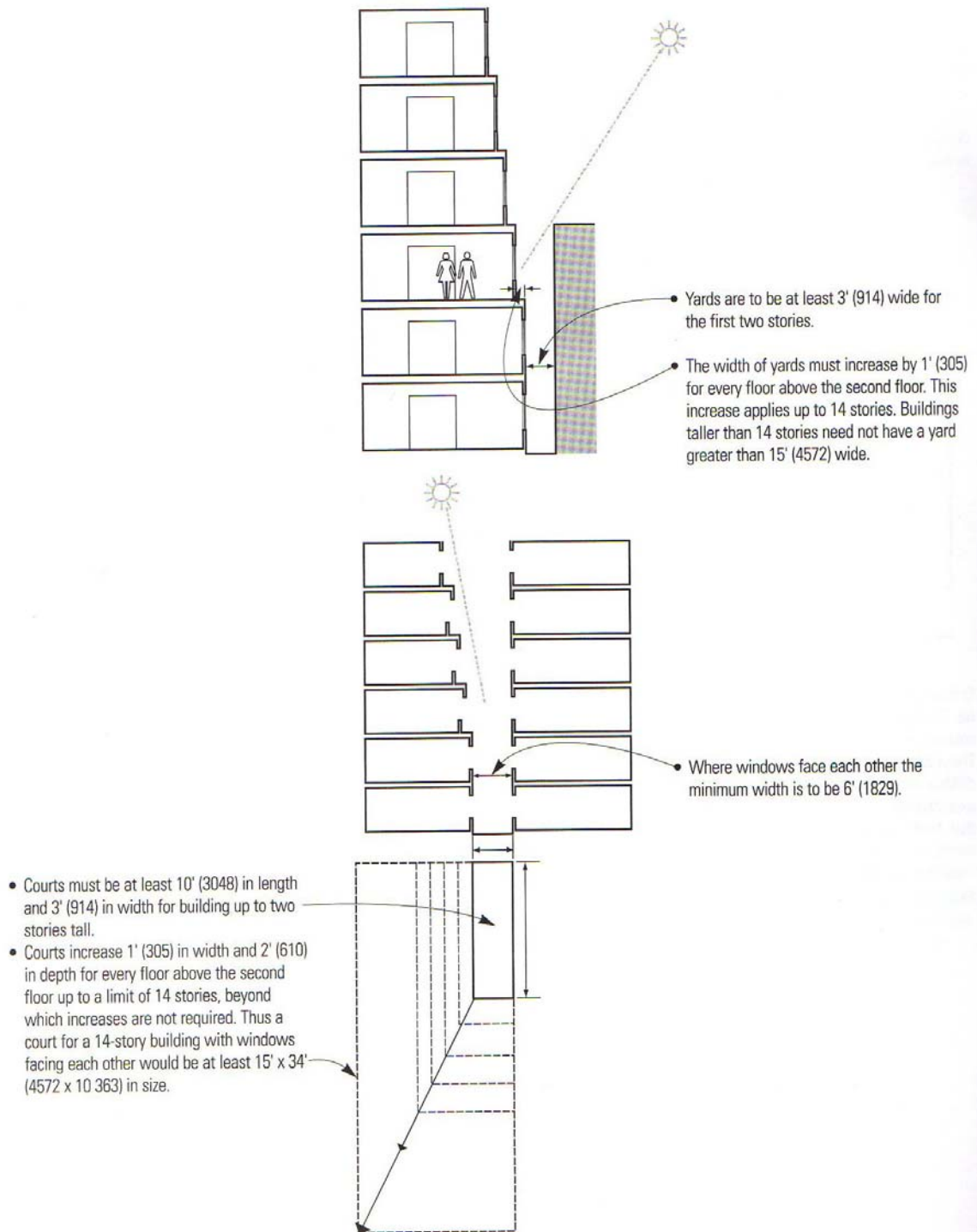


Figure 43: Yards and Courts
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 223.

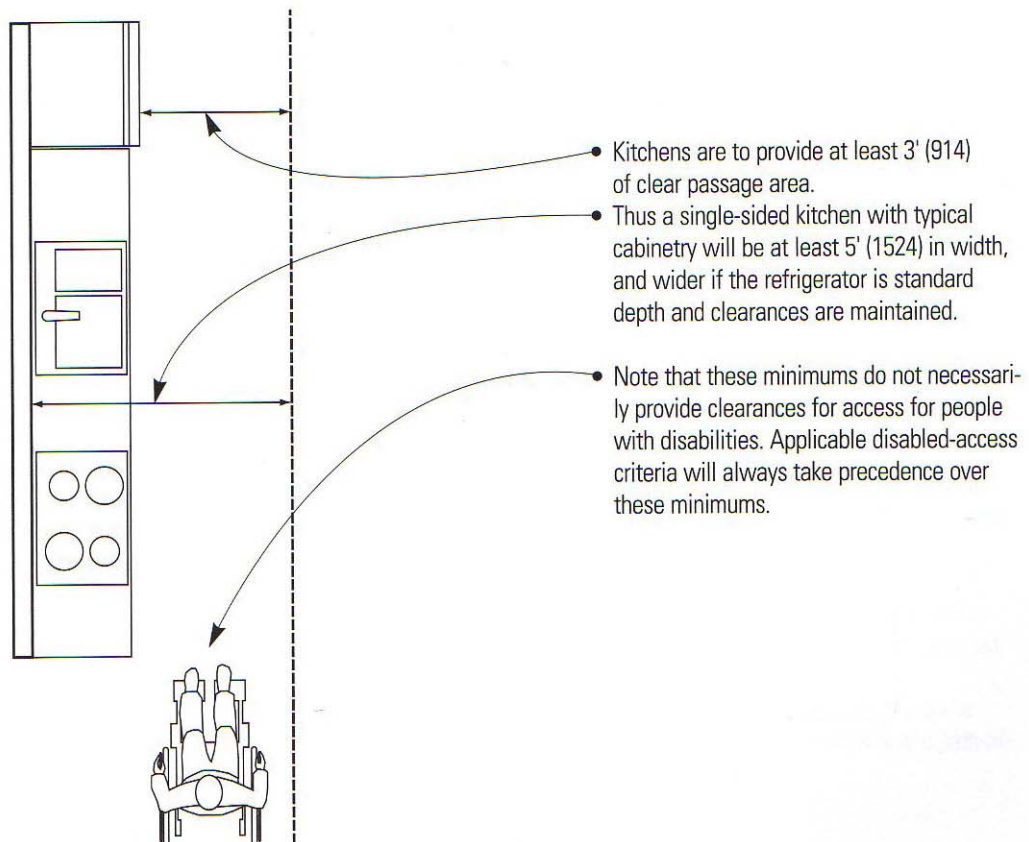
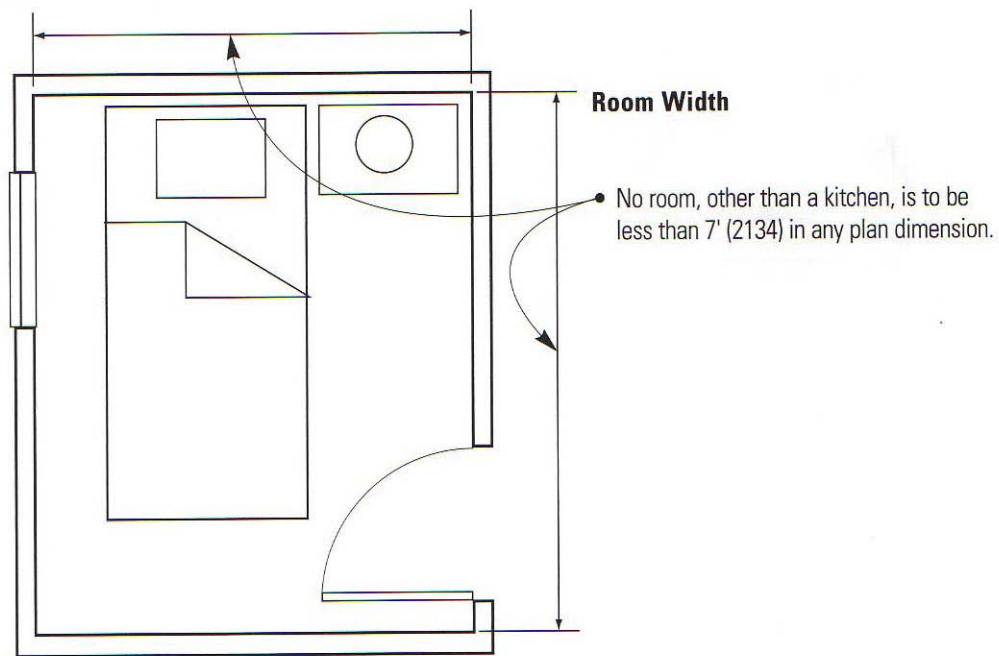


Figure 44: Room Width
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 225.

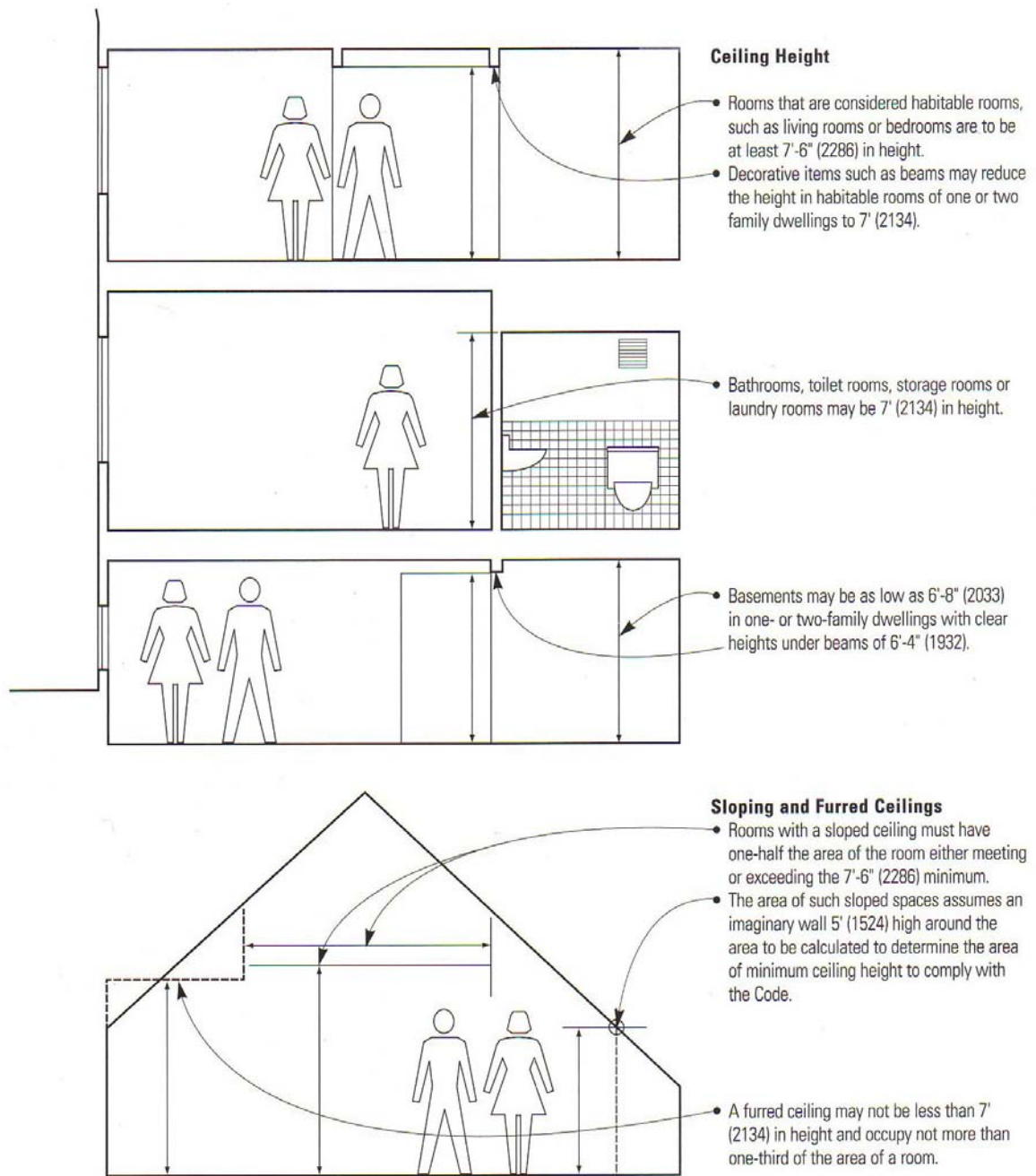
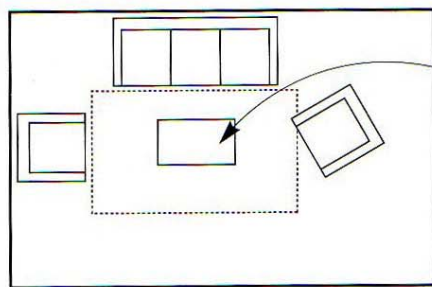
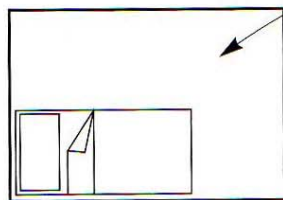


Figure 45: Ceilings
 Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 226.

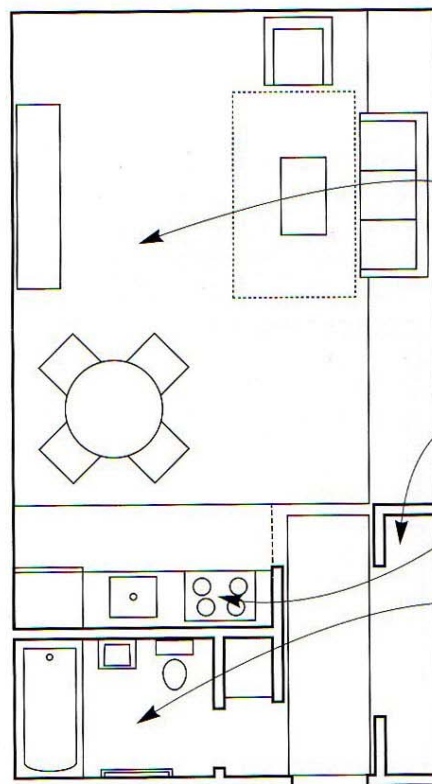


Room Area

- Each dwelling unit must have one room of at least 150 sf (13.9 m²) in net area.
- Other rooms, except kitchens, are to have a minimum net area of 70 sf (6.5 m²).



- Note that the definition of habitable spaces excludes bathrooms and toilet rooms, but includes spaces for cooking, living, sleeping or eating. Thus, bedrooms must be at least 10' by 7' (3048 by 2134) to meet the space criteria of this section.



Based on the criteria of § 1207.4, a single-person unit would contain:

- A living/dining sleeping room of 220 sf (20.4 m²). An additional 100 sf (9.3 m²) of area is required for each occupant in excess of two.
- A separate closet (of undefined size).
- A cooking area with a sink, cooking appliance and refrigerator with 30" (762) of clear space in front.
- There is also to be a separate bathroom with a water closet, lavatory, and bathtub or shower.
- The unit is to meet all of the ventilation and natural-light requirements contained in the Code.

Figure 46: Room Area & Efficiency Units
Ching, *Building Codes Illustrated: A Guide to Understanding the IBC*, 227.

Note that access criteria must also be examined regarding doorway and path-of-travel clearances.

LAND USE ORDINANCE (LUO) REVIEW

The City and County of Honolulu have adopted the Land Use Ordinance, which dictates the zoning and land use laws for Honolulu. A review of this document identifies the development standards that must be adhered to for a new project. Specific to this project, the use according to the LUO is an apartment district, which allows for a range of apartment densities and a variety of living environments. The predominant use is for multifamily dwellings that are further subcategorized as A-1 low-density apartments, A-2 medium-density apartments or A-3 high-density apartments. Figure 47 shows the LUO Table 21-3.3 that specifies the development standards for the apartment district. Additional standards for this district are as follows:

1. Except for necessary access drives and walkways, all yards shall be landscaped.
2. Optional Yard Siting. In the A-2 and A-3 districts, parking lots and garages may extend to side and rear property lines, provided the following requirements are met:
 - a. An area or area of open space equivalent to the area to be used for parking or accessory use structures are provided elsewhere on the zoning lot. This open space shall be maintained in landscaping, except for drives or walkways necessary for access to adjacent streets. Parking may overhang the open space up to three feet if wheel stops are installed. A minimum of 50 percent of the open space shall be contiguous to the street frontage abutting the zoning lot;
 - b. Any parking floor in the 10 feet adjacent to the property line shall not be more than 4 feet above existing grade; and
 - c. Landscaping required under Section 21-4.70 is provided and maintained.
3. Height setbacks. In the A-2 and A-3 districts, for any portion of a structure over 40 feet in height, additional height or portion thereof, an additional one-foot setback shall be provided. The additional setback shall be a continuous plane from the top of the structure to the height of 40 feet above grade (see Figure 48).¹⁵²

¹⁵² Department of Planning and Permitting (DPP) City and County of Honolulu, *Land Use Ordinance*, (Honolulu: 2003), Sec. 3-28.

Table 21-3.3
Apartment and Apartment Mixed Use Districts
Development Standards

Development Standard		District															
		A-1	A-2	A-3	AMX-1	AMX-2	AMX-3										
Minimum lot area (square feet) ¹		7,500	10,000	15,000	7,500 ²	10,000 ²	15,000 ²										
Minimum lot width and depth (feet) ¹		70	70	70	70	70	70										
Yards (feet):	Front	10	10	10	10	10	10										
	Side and rear ³	5 ⁴ or 10	5 ⁴ or 10	5 ⁴ or 10	5 ⁴ or 10	5 ⁴ or 10	5 ⁴ or 10										
Maximum commercial use density (FAR)		n/a			0.3 see Sec. 21-3.90-1(c)	0.4 see Sec. 21-3.90-1(c)	0.6 see Sec. 21-3.90-1(c)										
Maximum building area		<table><tr><th>Lot area (sq. ft.)</th><th>Requirement</th></tr><tr><td>Less than 7,500</td><td>60 percent of zoning lot</td></tr><tr><td>7,500 - 20,000</td><td>50 percent of zoning lot</td></tr><tr><td>Over 20,000</td><td>40 percent of zoning lot</td></tr></table>						Lot area (sq. ft.)	Requirement	Less than 7,500	60 percent of zoning lot	7,500 - 20,000	50 percent of zoning lot	Over 20,000	40 percent of zoning lot		
Lot area (sq. ft.)	Requirement																
Less than 7,500	60 percent of zoning lot																
7,500 - 20,000	50 percent of zoning lot																
Over 20,000	40 percent of zoning lot																
Maximum height (feet) ⁵		30	per zoning map		30	per zoning map											
Height setbacks		none	per Sec. 21-3.80-1(c)		none	per Sec. 21-3.90-1(c)											
Maximum density (FAR) for A-1 & AMX-1 districts based on zoning lot size		<table><tr><th>Lot area (sq. ft.)</th><th>FAR calculation</th></tr><tr><td>Less than 10,000</td><td>FAR = (.00003 x lot area) + 0.3</td></tr><tr><td>10,000 - 40,000</td><td>FAR = (.00001 x lot area) + 0.5</td></tr><tr><td>Over 40,000</td><td>FAR = 0.9</td></tr></table>						Lot area (sq. ft.)	FAR calculation	Less than 10,000	FAR = (.00003 x lot area) + 0.3	10,000 - 40,000	FAR = (.00001 x lot area) + 0.5	Over 40,000	FAR = 0.9		
Lot area (sq. ft.)	FAR calculation																
Less than 10,000	FAR = (.00003 x lot area) + 0.3																
10,000 - 40,000	FAR = (.00001 x lot area) + 0.5																
Over 40,000	FAR = 0.9																
Maximum density (FAR) for A-2 & AMX-2 districts based on zoning lot size		<table><tr><th>Lot area (sq. ft.)</th><th>FAR calculation</th></tr><tr><td>Less than 10,000</td><td>FAR = (.00009 x lot area) + 0.4</td></tr><tr><td>10,000 - 40,000</td><td>FAR = (.00002 x lot area) + 1.1</td></tr><tr><td>Over 40,000</td><td>FAR = 1.9</td></tr></table>						Lot area (sq. ft.)	FAR calculation	Less than 10,000	FAR = (.00009 x lot area) + 0.4	10,000 - 40,000	FAR = (.00002 x lot area) + 1.1	Over 40,000	FAR = 1.9		
Lot area (sq. ft.)	FAR calculation																
Less than 10,000	FAR = (.00009 x lot area) + 0.4																
10,000 - 40,000	FAR = (.00002 x lot area) + 1.1																
Over 40,000	FAR = 1.9																
Maximum density (FAR) for A-3 & AMX-3 districts based on zoning lot size		<table><tr><th>Lot area (sq. ft.)</th><th>FAR calculation</th></tr><tr><td>Less than 10,000</td><td>FAR = (.00014 x lot area) + 0.6</td></tr><tr><td>10,000 - 20,000</td><td>FAR = (.00004 x lot area) + 1.6</td></tr><tr><td>20,000 - 40,000</td><td>FAR = (.00002 x lot area) + 2.0</td></tr><tr><td>Over 40,000</td><td>FAR = 2.8</td></tr></table>						Lot area (sq. ft.)	FAR calculation	Less than 10,000	FAR = (.00014 x lot area) + 0.6	10,000 - 20,000	FAR = (.00004 x lot area) + 1.6	20,000 - 40,000	FAR = (.00002 x lot area) + 2.0	Over 40,000	FAR = 2.8
Lot area (sq. ft.)	FAR calculation																
Less than 10,000	FAR = (.00014 x lot area) + 0.6																
10,000 - 20,000	FAR = (.00004 x lot area) + 1.6																
20,000 - 40,000	FAR = (.00002 x lot area) + 2.0																
Over 40,000	FAR = 2.8																

¹There shall be no minimum lot area, width or depth for off-site parking facilities.

²There shall be no minimum lot area for off-site parking facilities.

³Five feet for detached dwellings and duplexes and 10 feet for other uses.

⁴For duplex lots, 5 feet for any portion of any structure not located on the common property line; the required side yard is zero feet for that portion of the lot containing the common wall.

⁵Heights for detached dwellings and duplexes shall comply with residential height and height setback requirements.

n/a = Not applicable
 (Added by Ord. 99-12)

Figure 47: LUO Table 21-3.3 Apartment Development Standards
 DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 3.

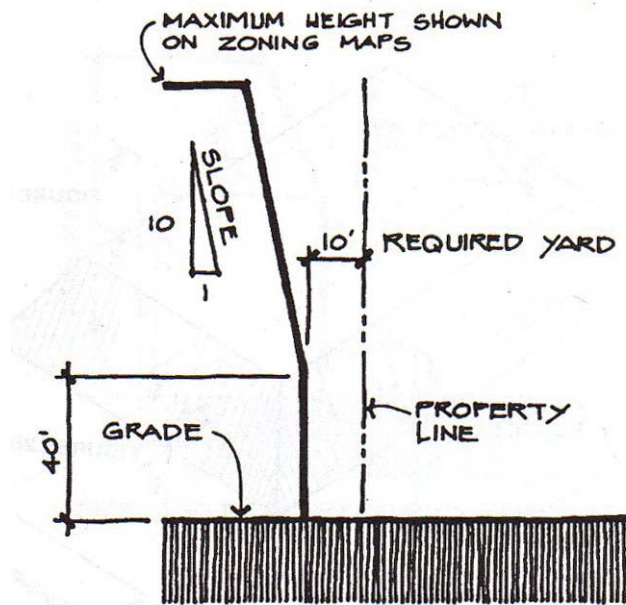


Figure 48: A-2 District Height Setback
DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 3.

General Development Standards

In addition to the use-specific development standards are general development standards that generally apply to any use or site, despite the zoning district in which it is located. The following standards may pertain to this particular project.

Section 21-4.30 Yards and street setbacks.

- Roof overhangs, eaves, sunshades, sills, frames, beam ends, projecting courses, planters and other architectural embellishments or appendages and minor mechanical and electrical apparatus with no more than 30-inch vertical thickness may project into required yards and height setbacks as follows:

<u>Required Yard</u>	<u>Projection</u>
Less than or equal to 10 feet	30 inches
Greater than 10 but less than or equal to 20 feet	36 inches
Greater than 20 feet	42 inches

- Exterior balconies, chimneys, lanais, porte cocheres, arcades, pergolas or covered passageways are not permitted within required yards.
- Other than retaining walls, walls and fences up to a height of six feet may project into or enclose any part of a required yard.
- Parking and loading shall not be allowed in any required yard.

Section 21-4.70 Landscaping and screening.

Parking lots, service and loading spaces, trash enclosures, utility substations and rooftop machinery shall be landscaped or screened in all zoning districts.

- Parking lots of five or more spaces shall provide a minimum five-foot landscape strip adjacent to any adjoining street right-of-way. This strip shall contain a continuous screening hedge of at least 36 inches tall with plantings no more than 18 inches on center. A minimum 36-inch-high wall or fence may be placed behind the setback line in lieu of a hedge. Either vines or shrubs shall be planted at the base of the wall or solid fence on the side fronting the property line. One canopy form tree minimum two-inch caliper shall be planted in the landscape strip for each 50 feet.

- To provide shade in open parking lots and to minimize visibility of paved surfaces, parking lots with more than 10 parking stalls shall provide one canopy form tree minimum two-inch caliper for every six parking stalls or one tree minimum six-inch caliper for every twelve parking stalls. If wheel, stops are provide, continuous planting areas with low ground cover and tree wells with trees centered at the corner of parking stalls may be located within the three-foot overhand space of parking stalls. See Figure 49.
- Parking structures with open or partially open perimeter walls which area adjacent to zoning lots with side or rear yard requirements shall meet the following requirements:
 - An 18-inch wide and minimum 42 inches tall landscaping strip along the abutting property line shall be provided.
 - A minimum two-inch caliper tree shall be planted for every 50 linear feet of building length, abutting a required yard.
 - Each parking deck along the abutting property line shall have a perimeter wall at least two feet in height to screen vehicular lights otherwise cast onto adjacent property.
- All outdoor trash storage areas shall be screened on a minimum of three sides by a wall or hedge at least six feet tall. The wall shall be painted surfaced or treated to blend in with the development it serves.
- All service areas and loading spaces shall be screened from adjoining lots by a wall six feet in height.
- Substations, other than individual transformers, shall be enclosed by a solid wall or a fence with a screening hedge with a minimum of five feet in height, except for necessary openings for access.
- All rooftop machinery and equipment, except for solar panels, antennas, plumbing vent pipes, ventilators and guardrails, shall be screened from view from all directions, including from above, unless that impairs it. ¹⁵³

¹⁵³ DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 4.

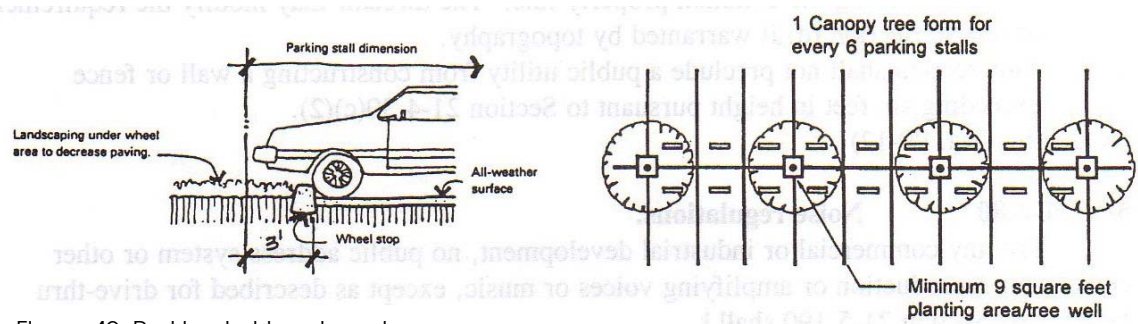


Figure 49: Parking Lot Landscaping
DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 4.

Off-street Parking and Loading

Off-street parking and loading standards are intended to minimize street congestion and traffic hazards in addition to providing safe and convenient access to the residences. Parking standards are not intended to satisfy the maximum parking demand.

Section 21-6.20 Off-street parking requirements.

In Figure 50, Table 21-6.1 gives the minimum number of required off-street parking spaces for multifamily dwellings.

Section 21-6.30 Method of determining number.

- The number of stalls required is base on floor area of the building as is shown in Table 21-6.1.
- All required parking spaces shall be standard-sized parking spaces, except multifamily dwellings may have up to 50 percent compact spaces.

Section 21-6.40 Arrangement of parking spaces.

Where four or more parking stalls are required, the parking lot or area shall be designed in a manner that does not require maneuvering into or from any street, alley or walkway for a vehicle to enter and leave a space, and which allows all vehicles to enter the street in a forward manner.

Section 21-6.50 Minimum dimensions.

- Standard-sized automobile parking spaces shall be at least 18 feet long and 8 feet 3 inches wide, with parallel spaces at least 22 feet long.
- Compact spaces shall be at least 16 feet long and 7 feet 6 inches wide with parallel spaces at least 19 feet long.
- Minimum aisle widths for parking bays shall be provided in accordance with Figure 51. With a parking angle of 90 degrees, the minimum aisle width may be reduced by one foot for every six inches of additional parking space width above the minimum width of 8 feet 3 inches, to a minimum aisle width of 19 feet.
- Ingress and egress aisles shall be provided to a street and between parking bays and all driveways leading into parking areas shall be a minimum of 12 feet wide.

Section 21-6.100 Off-street loading requirements.

Off-street loading requirements shall apply to all zoning lots exceeding 5,000 sf in area. The minimum number of off-street loading spaces for multifamily dwellings is found in Figure 52.

Section 21-6.120 Dimensions of loading spaces.

When only one loading space is required and the total floor area is less than 5,000 sf, the dimensions of the space shall be 19 x 8 ½ feet and have 10 feet vertical clearance. If more than one space is required or the total floor area exceeds 5,000 sf, the minimum dimensions of at least half of the required spaces shall be 12 x 35 feet with a vertical clearance of at least 14 feet. The remaining spaces shall meet the first set of dimensions given above.

Section 21-6.130 Location and improvement of loading spaces.

- No required loading space shall be in any street or alley. It shall be provided within the building or adjacent to the building. It shall not occupy any required off-street parking spaces or restrict access to them or the building.
- All loading spaces and maneuvering areas shall be paved or covered with an all-weather surface.

Section 21-6.140 Exceptions to off-street parking and loading requirements.

Special parking and loading requirements may be approved in connection with planned development-housing projects, cluster housing and conditional use permits.¹⁵⁴

¹⁵⁴ DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 6.

Table 21-6.1 Off-street Parking Requirements									
Use ¹	Requirement ²								
Sales: appliance, household and office furniture; machinery; and plumbing and heating supply	1 per 900 square feet								
Self-storage facilities	1 per 2,000 square feet								
Shopping centers ³	1 per 300 square feet								
Skating rinks	1 for each 4 skaters of the rink's maximum capacity or 1 per 1,500 square feet of skating surface, whichever is greater.								
DWELLINGS AND LODGINGS									
Boarding facilities	2 plus 0.75 per unit								
Consulates	1 per dwelling or lodging unit, plus 1 per 400 square feet of office floor area, but not less than 5								
Dwellings, detached, duplex and farm	2 per unit plus 1 per 1,000 square feet over 2,500 square feet (excluding carport or garage)								
Dwellings, multifamily	<table> <tr> <th>Floor Area of Dwelling or Lodging Units</th><th>Required Parking per Unit</th></tr> <tr> <td>600 sq. ft. or less</td><td>1</td></tr> <tr> <td>More than 600 but less than 800 sq. ft.</td><td>1.5</td></tr> <tr> <td>800 sq. ft. and over</td><td>2</td></tr> </table> <p>Plus 1 guest parking stall per 10 units for all projects</p>	Floor Area of Dwelling or Lodging Units	Required Parking per Unit	600 sq. ft. or less	1	More than 600 but less than 800 sq. ft.	1.5	800 sq. ft. and over	2
Floor Area of Dwelling or Lodging Units	Required Parking per Unit								
600 sq. ft. or less	1								
More than 600 but less than 800 sq. ft.	1.5								
800 sq. ft. and over	2								
Hotels: dwelling units	1 per unit								
Hotels: lodging units; and lodging units	0.75 per unit								

Figure 50: LUO Table 21-6.1 Off-street Parking Requirements
DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 6.

Parking Angle	Aisle Width
0°- 44°	12 ft.
45°- 59°	13.5 ft.
60°- 69°	18.5 ft.
70°- 79°	19.5 ft.
80°- 89°	21 ft.
90°	22 ft.

Figure 51: Minimum Parking Aisle Width
DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 6.

Use or Use Category	Floor Area in Square Feet	Loading Space Requirements
A. Retail stores, eating and drinking establishments, shopping centers, wholesale operations, warehousing, business services, personal services, repair, manufacturing, and self-storage facilities	2,000 - 10,000	1
	10,001 - 20,000	2
	20,001 - 40,000	3
	40,001 - 60,000	4
	Each additional 50,000 or major fraction thereof	1
B. Hotels, hospitals or similar institutions, and places of public assembly	5,000 - 10,000	1
	10,001 - 50,000	2
	50,001 - 100,000	3
	Each additional 100,000 or major fraction thereof	1
C. Offices or office buildings	20,000 - 50,000	1
	50,001 - 100,000	2
	Each additional 100,000 or major fraction thereof	1
D. Multifamily dwellings	Number of Units	
	20 - 150	1
	151 - 300	2
	Each additional 200 or major fraction thereof	1

Figure 52: Off-street Loading Requirements
DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 6.

Optional Development Regulations

Optional development regulations are intended to allow flexibility in design and development of land to promote its most efficient use; to encourage creative and cost-effective methods of housing development; to allow the integrated and unified development of structures and facilities within a single site or district; and to encourage the development or redevelopment of land that cannot be used to its fullest potential using the convention application of the LUO. The development standards for cluster housing may be applicable to this project.

Section 21-8.50-1 Cluster housing

In addition to the reasons for optional development, the intent of cluster housing is to encourage innovative site design and efficient open space; to minimize grading by allowing private roadways, narrower roadway widths and steeper grades than otherwise permitted; and to provide common amenities as appropriate.

Section 21-8.50-2 Cluster site design standards

Cluster housing may be constructed in all residential and apartment districts, subject to the following standards:

- The minimum land area and maximum number of dwelling units for a cluster housing project are as listed in Figure 53.
- Multifamily units are permitted and shall not exceed eight dwelling units in one structure.
- The director may waive the following requirements if suitable landscaping or buffer fence/wall is provided:
 - All structures with more than two dwelling units shall be set back a minimum of twice the required side and rear yards from adjoining properties not otherwise separated by a permanent open space in excess of 15 feet in width.
 - All common activity areas shall be set back a minimum of 25 feet from all adjoining property lines and walls of the units in the project.

- Subject to the director, buildings may be allowed to exceed the underlying district height limit to minimize the visual dominance of parking areas provided the following conditions are met:
 - The exemption will allow the required parking to be underneath the units allowing for more open space opportunities.
 - The building contains multifamily dwellings with gabled and/or hipped roof forms.
 - The highest exterior wall line shall not exceed 30 feet in height. This excludes gable ends above the structural plate line.
 - The building must be sited a minimum of 20 feet from any property line in common with a zoning lot in a residential district. The distance between any buildings with three stories shall be at least 30 feet.
 - The building height shall not exceed 34 feet.
 - The exemption will not adversely detract from the surrounding neighborhood's character.
- A wall shall be constructed or landscaped buffering shall be installed or a combination of the two along any private roadway abutting a neighboring property if the setback is less than the front yard required in the underlying zoning district of the abutting property.
- Maximum building area shall be 50 percent of the total land area for the project but may be more in response to design considerations. It is not to exceed 80 percent for any reason.¹⁵⁵

District	Minimum Land Area	Maximum No. of Units
R-20	60,000 sq. ft.	Total project area/20,000
R-10	30,000 sq. ft.	Total project area/10,000
R-7.5	22,500 sq. ft.	Total project area/7,000
R-5	15,000 sq. ft.	Total project area/3,750
R-3.5	10,500 sq. ft.	Total project area/3,500
A-1 - A-3	10,500 sq. ft.	Total project area/3,500

Figure 53: Cluster Site Design Standards
DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 8.

¹⁵⁵ DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 8.

The requirements for housing according to state and local agencies are a combination of performance and prescriptive-based standards. HUD's minimum housing quality standards are performance-based and allow for greater flexibility in design. The IBC and LUO requirements are prescriptive and must be followed precisely. The review of all of these requirements assists the design of the project. The occupancy and zoning district determination indicate the allowable building height and area as well as the requirements for setbacks, open site area and parking. Knowing the standards is important because ultimately they will be used to inform the design decisions.

6 HOUSING TYPOLOGY & DESIGN THEORY

HOUSING TYPOLOGY

In the process of defining the appropriate housing type for a project, it is important to consider the client, or user group, and the site conditions. In this project, the client group to consider is an extended family of Samoans seeking Section 8 housing in urban Honolulu. In terms of the site, the housing type should relate to the context of the surrounding neighborhood. For the purposes of this project, the housing type will first be identified based on the needs of the client group and then the site selection will be made. Factors of site selection include the socioeconomic characteristics of the client group, such as income level and geographic locations of Samoans in Hawai'i, and finding the appropriate context for the selected housing typology in terms of scale and massing. The densities surrounding the site, the project program requirements and the housing typology used, will then determine density of the project. First, in order to make an informed decision on the housing type, it is best to have an understanding of the various options available. These options range from single-family dwellings to high-rise apartments and are described in detail in this chapter.

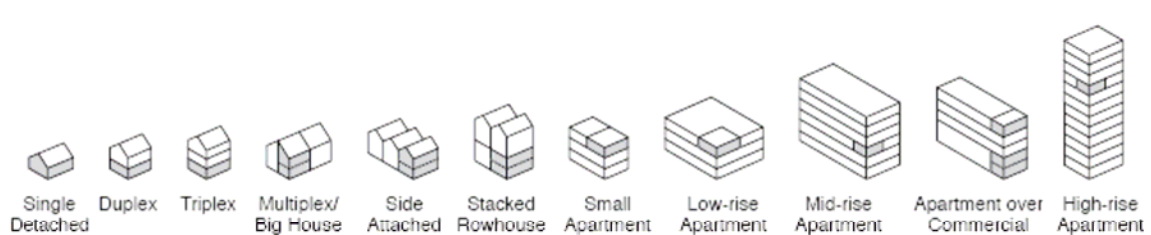


Figure 54: Housing Types

http://www.housinginitiative.org/pdfs/Housing%20Types/Housing_Types_Sheets.pdf
(accessed December 6, 2007).

Single-family homes consist of a detached building for a single dwelling unit. Common names for this housing type are house, cottage, villa or bungalow. Typical number of floors ranges from 1 – 3. Net site density is up to 15 units/acre. Characteristics of the single-family home are strong individual identity, ability to customize, flexible unit layouts at low densities, clearly defined public and private boundaries and fewer neighbors. A negative aspect is that larger individual units and yards consume more resources, such as material, energy and water, than other housing types.¹⁵⁶

The duplex or triplex are two or three dwelling units together in a detached building. Common names are duplex, semi-detached, double house, accessory unit, ancillary unit, carriage unit and twin home. This housing type typically has 1 – 3 floors and a net site density of 4 – 17 units/acre. The size and massing are similar to the single-family home. Other characteristics include shared or individual exterior entries, some personalization possible by tenant, limited privacy in outdoor spaces and adaptable to many different sites.

The multiplex or big house is four or more dwelling units in a detached building. Common names include quadruplex, mansion townhomes, back-to-back semi-detached and grand house. The building has 2 – 3 floors and a net site density of 10 – 24 units/acre. This housing type is designed to appear as a very large single detached house. Characteristics include single- or multi-level units, private or shared entries and reduced privacy in outdoor spaces.

Side attached houses are multiple units in a row, each with exterior access at the ground level. Common names are rowhouse, townhouse, joined court and terrace house. Typical per building are 4 – 8 units, 1 – 3 floors and a net site density of 12 – 35 units/acre. Each unit has an exterior front door but the compact design reduces indoor and outdoor privacy. Less opportunity exists to express individual identity due to uniform streetscape.¹⁵⁷

¹⁵⁶ Corridor Housing Initiative, "Housing Types," Center for Neighborhoods, June 2005, <http://www.housinginitiative.org/housingtypes.html>, 1 (accessed October 10, 2007).

¹⁵⁷ Corridor Housing Initiative, "Housing Types," 2005, 2-4.

The stacked rowhouse is a combination of the side-attached units with apartments above or below. Common names are stacked flats, two-over-two and maissonette. They include 8 – 12 units, 3 – 4 stories and a net site density of 25 – 40 units/acre. Characteristics include entries that may be interior or exterior, reduced indoor and outdoor privacy and uniform streetscape.

Small apartments have 4 – 16 units, 2 – 3 floors and a net site density of 15 – 68 units/acre. Common names are walk-up apartment, four- or six-plex and garden apartment. Units are typically accessible from a central hall or exterior stair and some must be shared access.¹⁵⁸ Shared entry access should be limited to 6 – 10 units.¹⁵⁹ Overall, privacy is reduced with shared outdoor spaces.

Low-rise apartments have 12 – 40 units, 3 – 4 floors and a net site density of 10 – 80 units/acre. Common names include garden apartment, tuck-under apartment and podium apartment. Units are typically accessed through interior hallways and surrounding grounds are shared. Private outdoor spaces can be achieved with balconies or patios.

Mid-rise apartments have 60 – 240 units, 5 – 8 floors and a net site density of 26 – 148 units/acre. Common names include elevator and apartment. Mid-rise apartments have interior entries and require elevators for unit access. The grounds are shared and security becomes an issue with the increased number of residents. Public and private space needs to be clearly defined.¹⁶⁰

Apartments over commercial space are typically 25 – 100 units per building, 3 –5 floors and have a net site density of 26 – 84 units/acre. The common name is vertical mixed use. Entries may be interior or exterior but are shared. An elevator is required for unit access and the design of access must be carefully considered, as security may be an issue with commercial spaces below. Outdoor spaces are typically non-existent.

¹⁵⁸ Corridor Housing Initiative, "Housing Types," 2005, 5.

¹⁵⁹ Clare Cooper Marcus and Wendy Sarkissian, *Housing as if People Mattered: Site Design Guidelines for Medium-density Family Housing*, ed. by Peter Hall and Peter Marris (Berkeley: University of California Press, 1986), 85.

¹⁶⁰ Corridor Housing Initiative, "Housing Types," 2005, 7-8.

High-rise apartments have 60 – 300 units per building, 8+ floors and a net site density of 60 – 300 units/acre. Common names are elevator apartment, slab-block apartment and point tower. Access to units is through shared entries and elevators. Unit privacy is high and balconies or private roof gardens afford private outdoor spaces, otherwise the grounds are shared.¹⁶¹

Of all the housing types, in America, the preferred type is the single-family home with home ownership at 68.2 percent.¹⁶² It is essentially part of the American Dream to own your home. “Given this social context, no multifamily housing can be totally satisfactory. Thus, the affordable housing architect and developer are at a distinct handicap from the get-go.”¹⁶³ This dream may be true for many Americans; however, it does not take into account ethnic groups that are accustomed to multifamily and multigenerational housing arrangements. For example, the Samoans are a communal society and prefer to live in a housing arrangement that places them in immediate proximity to other Samoans. Therefore, multifamily housing seems ideal for them. This is the first step in narrowing down the housing types available.

DESIGN THEORY

In the next step of determining which multifamily housing is most suitable for low-income residents, exploring existing design theories helps by providing additional criteria considerations. This section illustrates the concepts of Defensible Space and Community of Interest by architect and city planner Oscar Newman who is known internationally for his work in community planning, assisted housing, crime prevention and racial integration.

Defensible Space

Newman’s Defensible Space concept is aimed at reducing crime in urban areas. This topic pertains to this project for several reasons. About 30 percent of Hawaii’s Samoans live in public housing in Kalihi. As a cultural group, they have spoken out about their concerns of security and safety of where they live. Kalihi is an industrial, crime-ridden area within Honolulu and is not considered a desirable place to live by many. Also, the

¹⁶¹ Corridor Housing Initiative, “Housing Types,” 2005, 9-10.

¹⁶² U.S. Bureau of the Census, “Housing Vacancies and Home Ownership: Third Quarter 2007,” <http://www.census.gov/hhes/www/housing/hvs/qtr307/q307tab5.html> (accessed December 6, 2007).

¹⁶³ Sam Davis, *The Architecture of Affordable Housing* (Berkeley: University of California Press, 1995), 83.

Kalihi Samoans are concerned with increasing numbers of their youth participating in gangs and using drugs. They believe that the housing is to blame because it is too closed off; they have no means of maintaining social control of their youth in the way that they are accustomed or over the grounds of the housing developments.¹⁶⁴

Newman also believes that housing form in addition to physical layout of the community affects the residents' ability to control areas. The main concept of Defensible Space is to restructure the physical layout of the communities and to select appropriate housing types that allow residents to control the areas around and within their homes.¹⁶⁵

Newman's argument stems from his days as a teacher of urban design at St. Louis' Washington University when he watched the decline of Pruitt-Igoe, an award-winning high-rise public housing project. The project that was completed in 1956 was subject to so much crime that it became unlivable. Although low-income families could live there essentially for free, it had high vacancy rates that led to its closure and then demolition in 1972. Newman noticed a successful low-rise housing project across the street from Pruitt-Igoe whose residents were in the same socioeconomic class and set out to determine what physical differences enabled one to survive while the other failed. He obtained funding from the National Science Foundation and did an extensive study comparing crime rates with the design features in urban neighborhoods that collectively housed nearly half a million people. This study resulted in his 1972 book *Defensible Space*, which showed that the safest neighborhoods maximized private space and minimized common zones. Newman's definition of private space is any area that is under the control of one family. This may be interior or exterior space. Opposite of the private areas are communal areas, such as community rooms, computer rooms and recreation rooms. If they exist in a development, they need to be carefully designed so that they do not become public zones with no social control. The common zones Newman speaks of are circulation areas, such as lobbies, corridors, stairways and elevators that are considered common because they are shared by a few families. Another factor that he found contributes to safe areas is to minimize the ease of entry to and exit from the

¹⁶⁴ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 182-184.

¹⁶⁵ Oscar Newman, *Creating Defensible Space* (Washington, D.C.: U.S. Dept. of Housing and Urban Development, 1996), 9, 14.

neighborhood or housing area. This deters quick entry and escape for potential criminals.¹⁶⁶

The three principles of concept of Defensible Space include: zones of territorial influence, surveillance opportunities for residents and image and milieu.

Zones of territorial influence

Newman favored design approaches that give residents territorial prerogatives over certain spaces. These included letting the building shape define and enclose its grounds; subdividing streets to create territorially defined blocks and areas; interrupting, but not stopping, easy vehicular access; and creating symbolic barriers—interrupting movement along access paths that alert the user of the transition between public and private space.

Surveillance opportunities for residents

Newman believed that lighting, windows, and the positioning of public areas should allow residents to see the common areas and convey the sense that one is continually under observation while on the grounds. For example, a lobby can be designed so that internal activity—such as getting mail and waiting for the elevator—can be seen from the streets and exterior grounds of the housing project.

Image and milieu

To Newman, it was important to provide housing with interior design finishes and furniture that would give housing projects a distinctive tone, not an institutional one. Another idea was to juxtapose residential areas with other safe functions such as commercial, institutional, industrial, entertainment uses, and safe streets. Today, we call this mixed uses.¹⁶⁷

In Newman's more recent book, *Creating Defensible Space*, he discusses how different building types create public and private spaces inside and outside of the dwelling that affect the residents' ability to control them. He groups all buildings into three categories for simplification: single-family houses, walkups and high-rises. The nature of the single-family home, which he includes detached houses, semi-detached houses and rowhouses, creates private interiors that are not shared by more than one family. Outside the home, each unit has a front and rear yard. The rear yard is deemed private as it is only accessible from inside the unit, but the front yard is considered semi-private.

¹⁶⁶ Randal O'Toole and Stephen Town, "Crime-friendly Neighborhoods," Reasononline, February 2005, <http://www.reason.com/news/show/36489.html> (accessed December 1, 2007).

¹⁶⁷ Stuart Meck, "Getting on the Case: A Short History of the Ties Between Security and Urban Design," *Planning* (June 2005): 11.

Even though it clearly belongs to a unit, it faces a public street giving access to those other than the residents.¹⁶⁸

Looking at the walkup, there is a major characteristic difference from the single-family houses. This change is the introduction of circulation areas within the building allowing access to units. These areas are common semi-private spaces because more than one family shares them. The grounds surrounding the walkup also are common semi-private spaces as all the families share them.¹⁶⁹

The last category is the high-rise. These buildings also have common semi-private or even public areas including entries, elevators, stairs and corridors. The outside grounds are designated as public because they are disassociated from any of the individual units of the building. When considering these building types, the types that have more shared areas take on more public characteristics. This is because people feel less of a right to claim ownership over a space that is jointly shared by others. They feel they do not have the right to control or determine the activities that take place in these areas. This feeling increases as the number of people sharing the space increases. As a result, none of the tenants feel or take ownership of these common areas, whether they are interior or exterior, and they become open for criminal activity. Newman's response to this situation is to reduce the number of families sharing an entry and utilize building types that have outdoor spaces that are clearly the responsibility of specific tenants. "The smaller number of families sharing an entry and landing allows the families to control the public spaces better: They can more readily recognize residents from strangers and feel they have a say in determining acceptable behavior."¹⁷⁰

Other physical factors that Newman's research determined create high crime rates in low- and moderate-income housing developments are, in order of importance: the height of the buildings, which in turn correlates highly with the number of apartments sharing the entry to a building; the size of the housing project or the total number of dwelling units in the project; and the number of other publicly assisted housing projects in the area.¹⁷¹

¹⁶⁸ Newman, *Creating Defensible Space*, 14 -15.

¹⁶⁹ Newman, *Creating Defensible Space*, 16.

¹⁷⁰ Newman, *Creating Defensible Space*, 23.

¹⁷¹ Newman, *Creating Defensible Space*, 24.

The Defensible Space concept has been both praised and criticized. Amongst those praising it is Jack Nasar, a professor of city and regional planning at Ohio State University in Columbus and an environmental design researcher. He believes that Defensible Space is a "‘long-term way of reducing crime and improving the look of the community.’ Although this means crime prevention is relatively inexpensive, so ‘people are still talking about older and not-so-effective strategies like more police on the street, target hardening (refitting the physical environment with mechanisms that make it difficult for the criminal to enter, such as putting bars on windows), and the block watch.’" ¹⁷² Marcus Felson, a professor of criminology at Rutgers University in New Brunswick, New Jersey, writes and conducts research on crime prevention says that he favors the design approach to preventing crime, although he agrees that there is more money to be made through more intensive policing. Retribution and deterrence models of dealing with crime require more police and more judges. If crime is prevented through environmental factors, there will not be as high of a demand for these employment positions. ¹⁷³

Other criticism is that although Newman initially assumed that design changes work by creating feelings of ownership and a more positive social fabric, he had not assessed this key causal link directly. His initial research indicated that crime and vandalism went down, but he did not provide data to show that these changes were caused by a change in residents' views of their environment. More recently, in his work in Newark, New Jersey, San Francisco, and St. Louis, Newman and his associate Karen Franck added a household survey to over 2,500 residents, site visits and interviews with project managers to their usual research end of project work. The survey confirms that the Defensible Space concept of building size affected both crime and fear of crime through residents' control and use of space outside their apartments. ¹⁷⁴

Community of Interest

Later in Newman's career, his research focused more on the social aspects of communities as he developed another design theory based on people. This theory utilizes principles of Defensible Space along with other principles to create a new type of

¹⁷² Meck, "Getting on the Case: A Short History of the Ties Between Security and Urban Design," 13.

¹⁷³ Meck, "Getting on the Case: A Short History of the Ties Between Security and Urban Design," 13.

¹⁷⁴ Edward Krupat, *People in Cities: The Urban Environment and Its Effects*, (Cambridge: Cambridge University Press, 1994), 182.

community, the "Community of Interest." The social makeup of this community requires the grouping together of people of similar age and lifestyle. For example, residential environments will be exclusively for families with children, for young working adults or for the elderly – the three main lifestyle groups Newman identifies.¹⁷⁵ In order to maintain the exclusive character of a particular Community of Interest, an agreement must be made by either the housing management or among groups of residents.¹⁷⁶ Essentially, Newman's concept is advocating a form of segregation based on age and lifestyle. He believes that grouping together people of similar interests and in similar periods of life will have a positive effect on the social environment of a community. People will have a lot in common causing them to interact frequently regardless of socioeconomic background or race.¹⁷⁷ Newman contends that "it is this form of 'segregation', which is the key to the 'integration', and 'interaction' of neighbors of different racial, ethnic and economic backgrounds."¹⁷⁸

Newman's goals of this design theory are to bring together separate communities in an attempt to recreate the successful urban environments that once existed before the advent of the suburb and to achieve racial and economic integration within communities rather than between them.

We have grown to accept the fact that America is no longer a country with urban environments. San Francisco, Boston and Minneapolis are among the few remaining cities, which still have neighborhoods where people feel they can walk the streets safely at night and where middle- and working-class families can raise their children within city limits. But even in these cities rising crime rates suggest that their uniqueness may be short-lived. In response to our fears, we have adopted a course of action which suggests that we have given up many of our society's past hopes and aspirations – we have abandoned our commitment to urban life and to the poor and dark-skinned living in inner cities. Our heterogeneous cities have been dispersed into a myriad of small suburban communities of ethnic and economic uniformity. We now content ourselves with the safe fortresses of white, middle-class suburbia. American society has become polarized into suburban, white and wealthy versus urban, dark and poor.¹⁷⁹

¹⁷⁵ Anu Russell A. Tharanath, "Evaluation and comparison of the Literature of Oscar Newman, Bill Hillier, and Clare Cooper Marcus," May 2001, http://www.geocities.com/anu_tharanath/Literature.html?200713 (accessed December 13, 2007), 3.

¹⁷⁶ Oscar Newman, *Community of Interest*, 1st ed. (Garden City: Anchor Press/Doubleday, 1980), 17-18.

¹⁷⁷ Ian Colquhoun, *Design Out Crime: Creating Safe and Sustainable Communities* (Amsterdam: Architectural Press, 2004), 42.

¹⁷⁸ Tharanath, "Evaluation and comparison of the Literature of Oscar Newman, Bill Hillier, and Clare Cooper Marcus," 3.

¹⁷⁹ Newman, *Community of Interest*, 4-5.

It became clear to Newman that the increasing gap between the divergent cultures must be stopped and dealt with; running from crime is not the answer. Newman's response is Community of Interest, a concept that allows the differing racial and economic groups to live next to each other, which is essential to the survival of the concept of the urban life in America. He believes that working- and middle-class families will accept this integration if it is carried out within a framework providing:

1. the grouping of similar age and lifestyle groups live in housing environments that are designed to specifically fit their lifestyle needs;
2. a mix of income groups, which allows the values and lifestyles of the upper-income group to dominate; and
3. a percentage of low-income families and/or black families that is determined by the community and strictly adhered to.¹⁸⁰

Newman's idea is that a mix of income and racial groups on a quota basis is required so that it is non-threatening to the middle class; otherwise Communities of Interest will not be accepted and will ultimately fail.¹⁸¹

Community of Interest differs from Defensible Space in that it looks at various socioeconomic classes, rather than just the low-income class. In Community of Interest, Newman also aims to understand how the variations of housing's physical form can better serve different age and lifestyle groups. The safety of these communities remains, as always, a critical design factor to Newman, which is why his Defensible Space concepts are integrated into Community of Interest design guidelines.¹⁸²

In creating the guidelines for Community of Interest, there are four main principles. The most critical is the first, which is to select a building type that is best suited to the lifestyle and needs of the occupant group. All other guidelines are considered secondary and supportive to the first step. Newman selects a building type by applying two criteria to classify the residents: income and lifestyle. Income is a critical component in evaluating the suitability of a building type. For example, high incomes and high rent offer the

¹⁸⁰ Newman, *Community of Interest*, 7.

¹⁸¹ Gary Bridge and Sophie Watson, *The Blackwell City Reader* (Malden: Blackwell Publishing, 2002), 331.

¹⁸² Anu Russell A. Tharanath, "Evaluation and comparison of the Literature of Oscar Newman, Bill Hillier, and Clare Cooper Marcus," 3.

opportunity to purchase the presence of a doorman, making a building that might otherwise be deemed unsuitable to a particular group, suitable.¹⁸³

Looking at lifestyle, Newman uses human behavior to determine the best housing type solution. For families with children, it is important that they have a connection with the outdoors. Easy access to and from the building should be provided and the building grounds must have adequate play area. High-rises are not well-suited to these requirements. Rather the preferred solution is a building type where as few families as possible share a common entry, such as in a single-family row house complex or walk-up building type. Like families with children, the retired elderly are frequently home and seek residential environments with other elderly tenants with whom they can interact. Newman states that all building types are appropriate for the elderly, but he strongly recommends the high-rise elevator building because of ease of access to units and it provides a large number of neighbors for camaraderie. Newman also recommends the high-rise for the group of working adults but for different reasons than he gave for the elderly. Working adults are not home very frequently and would benefit from a high-rise that is secure with a 24-hour doorman and custodial staff to control the interior public areas of the building.¹⁸⁴

The second design principle for creating a Community of Interest is to require that the public areas of a housing development be designed specifically to serve the needs of the residents. This should be easy to do given the common interests of the tenant lifestyle group. The third principle requires that the site and the buildings be designed so that the grounds and interior common circulation areas are clearly defined as belonging to specific groups of residents. In other words, each building entry should provide access to a particular group of units and to that group only. Also, the access to that building unit should be across grounds that are clearly defined as belonging to that building and that particular group of residents. The fourth and final design principle requires the assignment of public areas of buildings and grounds to as small a group of residents as possible.¹⁸⁵ As in the case of Defensible Space, the last two principles promote tenant control over the non-private areas of a building.

¹⁸³ Newman, *Community of Interest*, 157-158.

¹⁸⁴ Anu Russell A. Tharanath, "Evaluation and comparison of the Literature of Oscar Newman, Bill Hillier, and Clare Cooper Marcus," 4.

¹⁸⁵ Newman, *Community of Interest*, 169-170.

Critics of Newman's Community of Interest concept are also critical of the New Urbanism concept. New Urbanism is an influential movement in architecture and planning in the United States whose design principles have been adopted for many housing and neighborhood projects in recent years. New Urbanist planning efforts aim at revitalizing and improving living conditions and opportunities for inner-city residents. Criticism of both of these concepts is that they encourage gentrification of urban areas through mixed-income communities.¹⁸⁶ Their goals of creating mixed-income neighborhoods bring middle-income households back into the inner city.¹⁸⁷ Often, as a result, gradual displacement of the low-income families that they were trying to help occurs.¹⁸⁸

Response

In regard to this design project, Newman's concepts are applicable but not in all aspects. The Defensible Space guidelines are directly applicable because the goal aims to alleviate the concerns of the Samoan community currently living in Honolulu's public housing. This community is concerned about the crime around and within their housing developments and Defensible Space specifically strives to reduce urban crime levels around affordable housing developments. Also, both Newman and Samoans share views regarding building design. Newman believes that the physical form of housing and its layout affects residents' control of their interior and exterior housing environments. The Samoans agree; they feel that the housing form directly affects their ability to implement their traditional methods of social control.¹⁸⁹

The Community of Interest concept can be achieved in this project with modifications. Where it may be appropriate as proposed on the Mainland, this concept does not directly apply to Hawai'i. In regards to Newman's desire to recreate the urban environments of the past pre-suburbs, this is not a significant issue in Honolulu. Urban sprawl has and continues to occur but being an island state with limited land, the urban residential environment within Honolulu remains strong. However, within the city, there are areas of segregation based on income. For example, the Kalihi neighborhood is

¹⁸⁶ Charles C. Bohl, "New Urbanism and the City: Potential Applications and Implications for Distressed Inner-City Neighborhoods," *Housing Policy Debate*, Vol. 11, Issue 4, Fannie Mae Foundation (2000): 779.

¹⁸⁷ Roberto G. Quercia and George C. Galster, "Threshold Effects and the Expected Benefits of Attracting Middle-Income Households to the Central City," *Housing Policy Debate*, Vol. 8, Issue 2 (1997): 421.

¹⁸⁸ John J. Palen, "Gentrification, Revitalization, and Displacement," in *Handbook of Housing and the Built Environment in the United States*, Edited by Elizabeth Huttman and Willem van Vliet (New York: Greenwood, 1988), 418.

¹⁸⁹ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 183.

home to many public housing developments and low-income families. This is an example of where a Community of Interest could help as it integrates different income level groups. The mixed-income community has the potential to provide a safer environment than the areas that are predominantly low-income and often high crime.

Segregation by lifestyle is also acceptable, but only if the definition of lifestyle group is altered. Newman proposes that shared interests and age define lifestyle. However, this is a limiting notion of community.¹⁹⁰ Segregation by age is not suitable for Pacific Island cultures or for Hawai'i in general. Multigenerational families are common and highly valued in Hawaiian culture. Therefore, it may be more appropriate to define a lifestyle group in terms of a cultural group who share common interests. As "Community of Interest is an effort to create a contemporary equivalent of the extended family," there is no reason to recreate this element that already exists and thrives in Hawai'i.¹⁹¹ Therefore, for this project, it is appropriate to define lifestyle in terms of an extended family cultural group that perpetuates the existing support system in Hawai'i. The Samoan migrants will benefit from this living arrangement because their society is based on the extended family model. Also, they share a common interest in perpetuating their culture, which may be achieved in this type of Community of Interest.

¹⁹⁰ Alfredo Triff, "Miami, Crime, and Urban Design," *Miami New Times*, May 20, 2004, <http://www.miaminewtimes.com/2004-05-20/culture/miami-crime-and-urban-design/full> (accessed December 13, 2007).

¹⁹¹ Newman, *Community of Interest*, 17.

7 CASE STUDIES

The case studies are intended to be learning tools to help the design of this project through analysis of successful and unsuccessful examples. The three affordable housing projects selected for analysis were chosen because they relate to the specific issues in this project. The first case study is Kūhiō Park Terrace, which is a public housing project in Honolulu. Almost half of its residents are Samoan and they have concerns about the housing itself and the level of crime within and surrounding the project. The second case study is Yorkshire Terrace, a public housing development in Los Angeles, California. It is an example of a housing project that serves a specific ethnic group, Hispanics. Also, it is in a high-crime neighborhood and security is a major concern of the residents. The third case study is Langham Court in Boston, Massachusetts. It is a mixed-income project in a historic neighborhood where security and safety are a concern.

EVALUATION METHOD

The evaluation of these three case studies is based on Oscar Newman's Defensible Space criteria to determine if and how the designs utilize these principles to promote security and safety in and around their developments. The implications of using or not using Defensible Space principles will be discussed.

The following design criteria is what Newman recommends as an ideal for an affordable housing project:

PROJECT SIZE

Limit the number of units per site to a maximum of 24. The larger the concentration of low-income families, the more residents feel isolated from the rest of society and their perceived differences greater.¹⁹² In addition, Newman's research showed that crime increased with the number of units in a housing project.¹⁹³ Low-income developments

¹⁹² Newman, *Creating Defensible Space*, 28.

¹⁹³ Newman, *Creating Defensible Space*, 86.

should be single-family homes, rowhouses or walk-up apartments. The maximum building height for these developments shall be three stories.¹⁹⁴

PUBLIC AREAS

Do not allow or at least minimize any indoor or outdoor public areas. Assign all areas of each unit and site to an individual family for their specific and private use. Each family is to have its own front and rear yard, and the front entry should be located directly off the street. A small fence should define the rear yard.¹⁹⁵ At a maximum, six families may share a common entry and only two families shall share a common landing on each floor.¹⁹⁶

SECURITY

The front yards, the fronts of buildings and the main entries shall face existing streets or new driveways with a maximum setback of 25 feet to facilitate normal patrolling by police. Rear yards should be backed onto the rear yards of other units. Collectively, the cluster of yards should be fenced off from the public street using a 6-foot high fence. Tenants shall be able to observe their front and back yards from within their units.

PARKING

All parking lots should be positioned a minimum of 10 feet away from any building and should be positioned enabling surveillance from the units.

WALKS

Walks shall be provided for safe convenient direct access to each unit and for safe pedestrian circulation throughout a development where there is a major need for pedestrian access between facilities. These walks should be located so that they can be easily viewed from within the units.

¹⁹⁴ Newman, *Creating Defensible Space*, 19.

¹⁹⁵ Newman, *Creating Defensible Space*, 88.

¹⁹⁶ Newman, *Creating Defensible Space*, 22.

GARBAGE AND REFUSE STORAGE

Individual garbage storage areas shall be provided outside and positioned to serve each dwelling unit. In ground garbage containers are preferred and should be able to hold two garbage receptacles.¹⁹⁷

PLANTING

Plantings should not screen doors and windows of dwelling units from the street or from walks leading from the street to the entrances of the units.¹⁹⁸

BUILDING CHARACTER

The building's aesthetic should be distinctive rather than institutional. It should fit within the context of the surrounding neighborhood.¹⁹⁹

¹⁹⁷ Newman, *Creating Defensible Space*, 116 -117.

¹⁹⁸ Newman, *Creating Defensible Space*, 117.

¹⁹⁹ Meck, "Getting on the Case: A Short History of the Ties Between Security and Urban Design," 11.

KŪHIŌ PARK TERRACE (KPT)
Honolulu, Hawai'i



Figure 55: Entry Security Gate
Housing and Community Development Corporation of Hawai'i (HCDCH), *Kūhiō Park Terrace/Kūhiō Homes Master Plan Report* (Honolulu: HCDCH, 2000), 11.



Figure 56: Family Education Center & KPT Tower
http://www.hawaii.gov/dbedt/gis/brownfields/site_12.htm (accessed December 7, 2007).



Figure 57: View of Kūhiō Homes from KPT Tower
HCDCH, *Kūhiō Park Terrace/Kūhiō Homes Master Plan Report*, 11.



Figure 58: Family Education Center
HCDCH, *Kūhiō Park Terrace/Kūhiō Homes Master Plan Report*, 11.

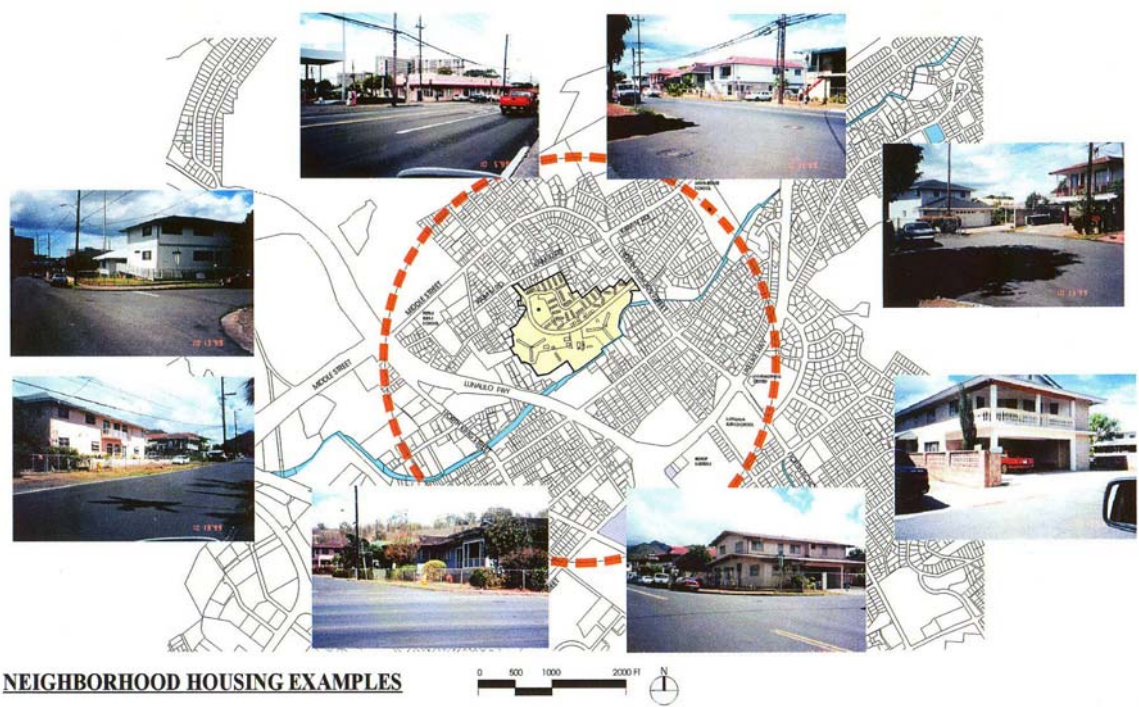


Figure 59: Neighborhood Houses
HCDCH, *Kūhiō Park Terrace/Kūhiō Homes Master Plan Report*, 21.



Figure 60: Kūhiō Park Terrace Site
http://www.hawaii.gov/dbedt/gis/brownfields/site_12.htm (accessed December 7, 2007).

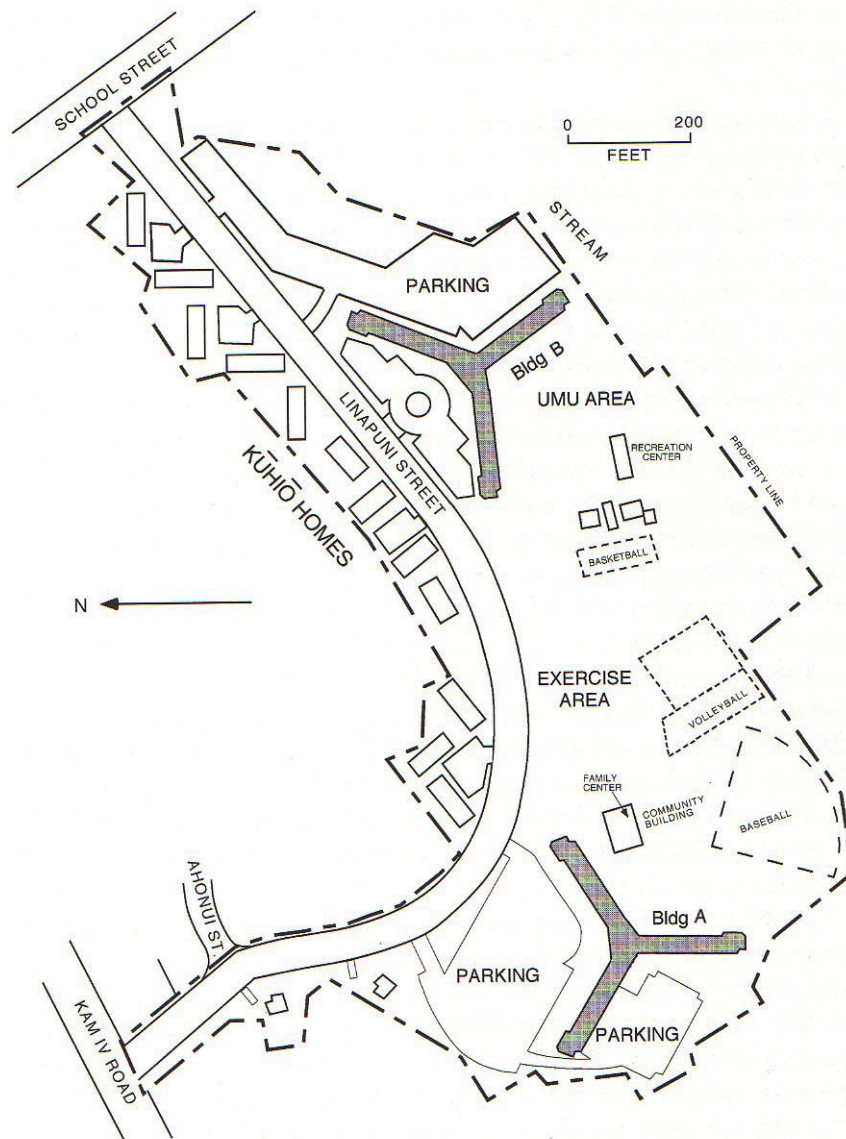


Figure 61: Site Plan
 Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 187.

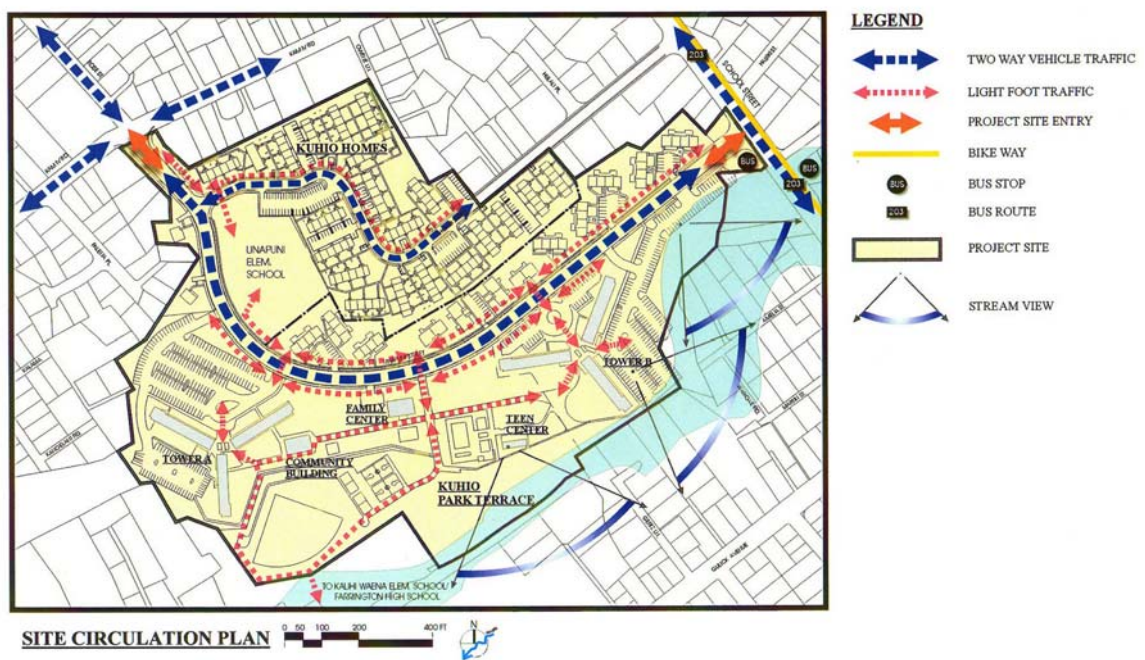


Figure 62: Site Circulation
HCDCH, Kūhiō Park Terrace/Kūhiō Homes Master Plan Report, 16.

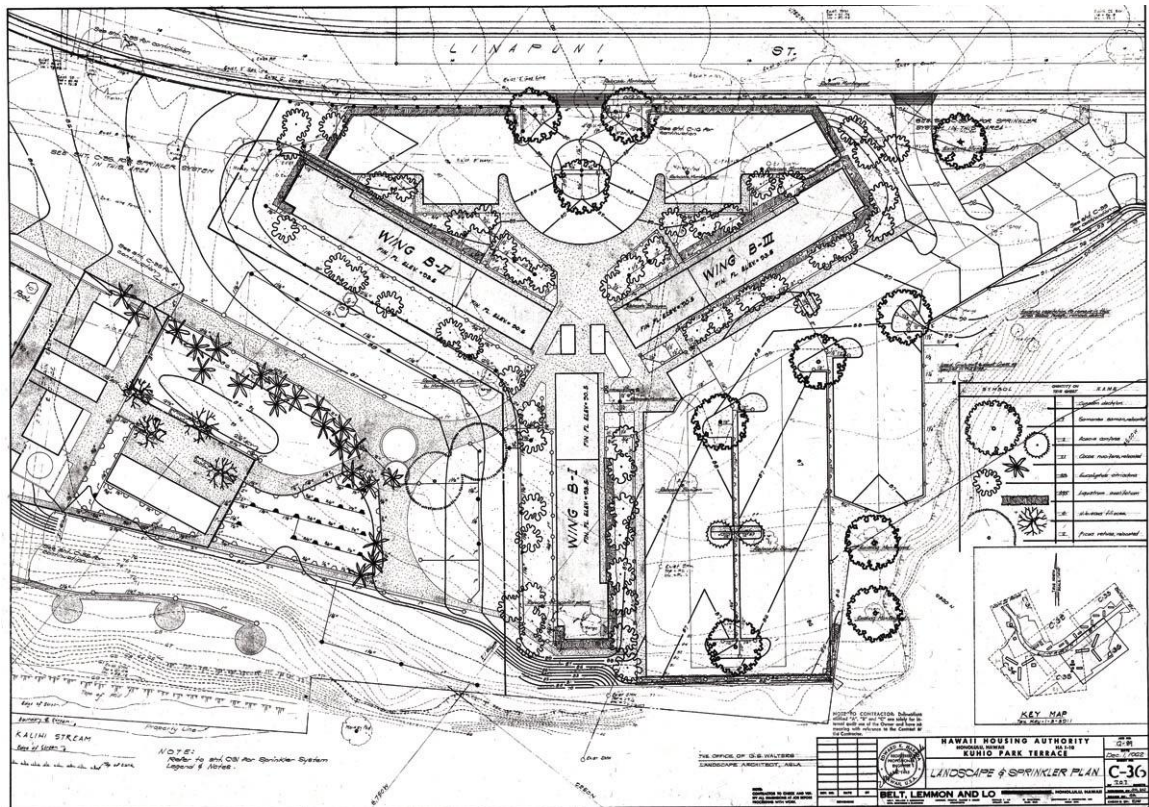


Figure 63: Tower Detail Landscape Plan
KPT As-Built Drawings

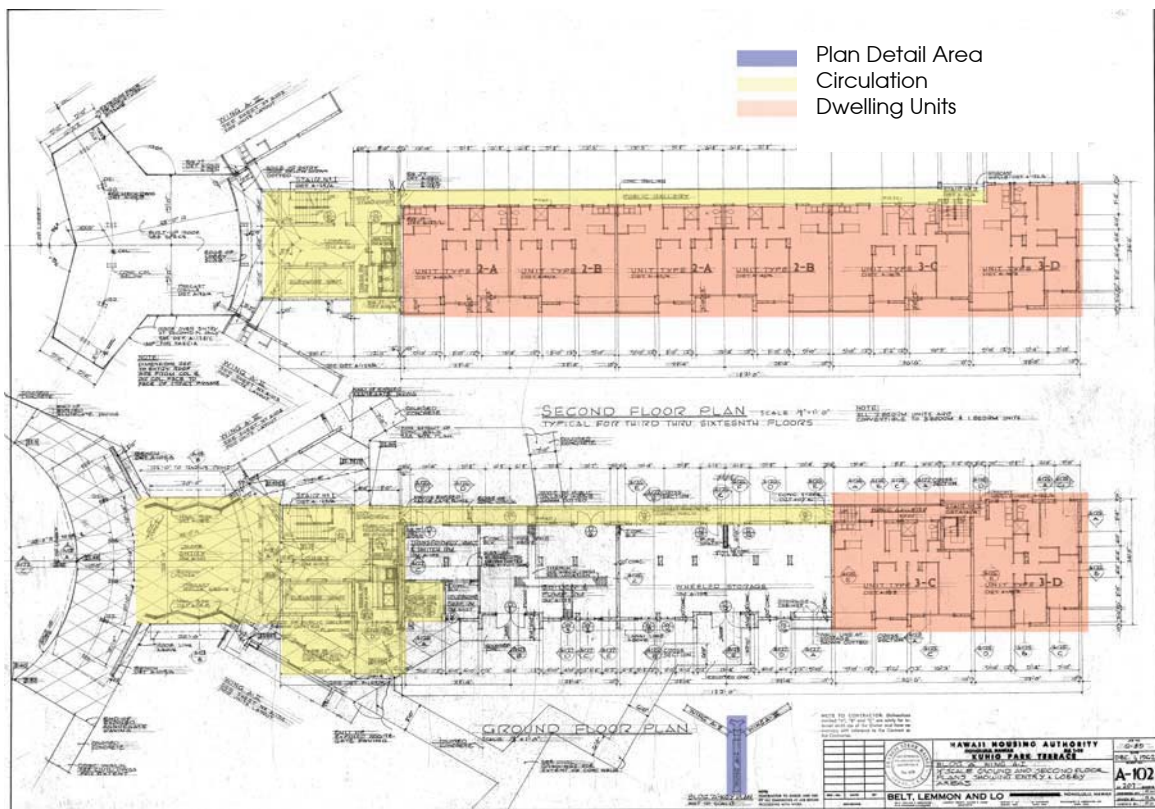


Figure 64: Tower Detail Plan – Ground & Second Floors
KPT As-builts Drawings

Building A (High Rise – 16 Stories)
 Two Bedroom 180 Apartments
 Three Bedroom 94 Apartments
 Total: 274 Apartments

Building B (High Rise – 16- Stories)
 One Bedroom 48 Units
 Two Bedroom 138 Units
 Three Bedroom 112 Units
 Total: 298 Units

Building C (Multi-Family Low Rise – 2 Stories)
 4 Units Per Building, 8 Buildings
 Four Bedroom 8 Apartments
 Total: 8 Apartments

Building D (Low Rise Duplex – 1 Story)
 2 Units Per Building, 4 Buildings
 Four Bedroom 32 Apartments
 Total: 32 Apartments

Building E (Single Dwelling – 1 Story) 2 Bldgs.
 Four Bedroom 2 Dwellings
 Total: 2 Dwellings

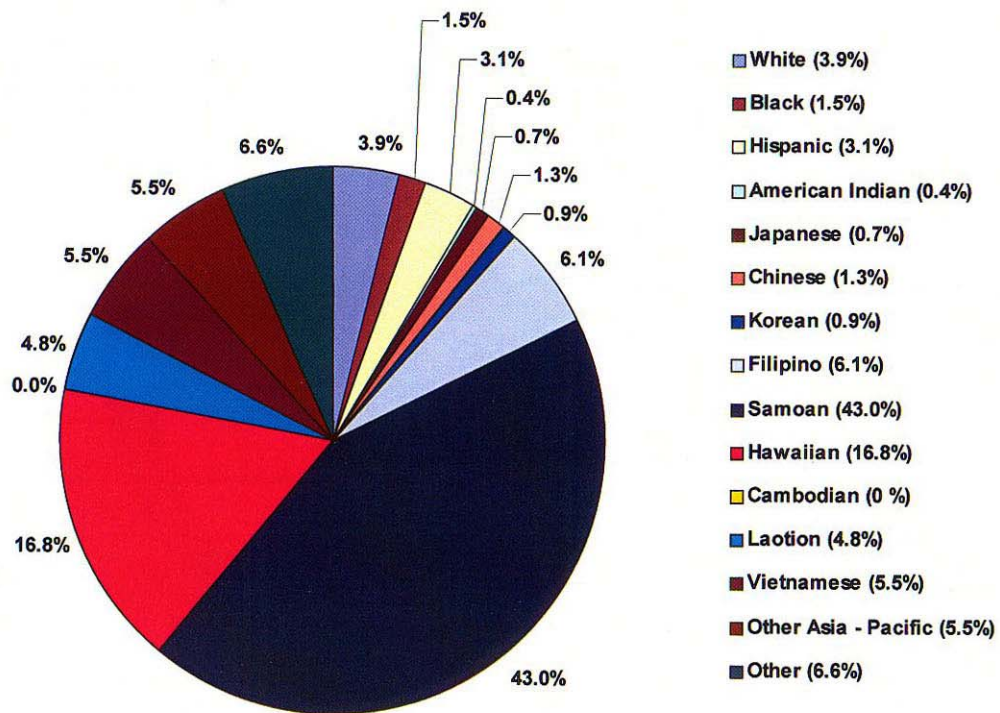
TOTAL : 614 UNITS

Figure 65: Unit Profiles
 HCDCH, Kūhiō Park Terrace/Kūhiō Homes Master Plan Report, 11.

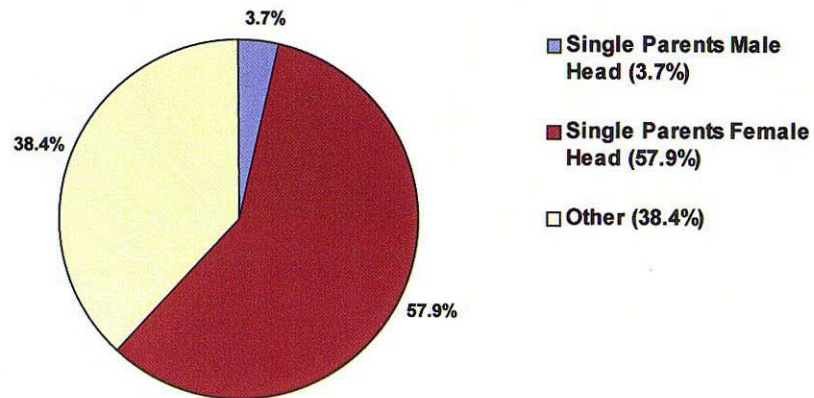
Unit Profiles								
	# of BRs	# of Bths	Sqare Feet	Wndws Sq.Ft.	Ext Drs	Int Drs	Clst Drs	# of Units
A	1	1	604	38	3	3	1	48
B	2	1	931	54	2	4	1	318
C	3	1	1062	117	3	5	1	206
D	4	1	2294	204	3	6	1	32
E	4	1.5	2225	138	3	6	1	8
F	4	1.5	1113	138	3	6	1	2

Site: Total Square Feet: 943,620

Figure 66: Unit Profiles
 Building Inspection Services, Inc., Physical Needs Assessment
 Inspection Report: Kūhiō Park Terrace (Honolulu: IBM, 2003), 13.



Population Ethnicity Mix



Head of Household

Figure 67: Demographic Charts
HCDCH, Kūhiō Park Terrace/Kūhiō Homes Master Plan Report, 14.

Owner/Developer: Hawai'i Public Housing Authority
Architect: Paul Louie and Associates, Inc.
Current Use: Public rental housing & community service providers
Completed: 1962

PROJECT DESCRIPTION

The project is the State's largest and one of its oldest public housing projects. The project site is in a low-income, predominantly immigrant urban residential neighborhood about three miles from the Honolulu International Airport in the Kalihi-Palama neighborhood. The development is on Linapuni Street, just off North School Street, about a ½ mile west of Likelike Highway. Across Linapuni street is a low-rise public housing complex, Kūhiō Homes.

The residential complex houses ethnically diverse low-income tenants. Figure 67 shows the breakdown of the ethnic mix as well as head of household statistics. These charts indicate that Samoans make up the largest ethnic group in the complex at 43 percent and that overall, single moms are the majority of the heads of households at 57.9 percent. Other demographic data provided by the Housing and Community Development Corporation of Hawai'i (HCDCH) indicates that over a third of the population are young children, many families come from cultural roots in the Pacific Islands and that many families stay for only a few years while many others stay for seven or more years.²⁰⁰ For the Samoan residents, they do not like the housing situation and directly link it to social problems such as child abuse and neglect, drug use and gang violence due to its closed, private character.²⁰¹ In Samoa, the houses do not have walls providing a strong social atmosphere, which is a reflection of their cultural values and way of living. KPT's arrangement does not allow for this communal lifestyle.²⁰²

The complex is also home to various community service providers and a new community center that opened in July 2003. These services aim to help the migrants adapt to their new urban environment. The \$13 million project includes a gym, meeting rooms, kitchen

²⁰⁰ Housing and Community Development Corporation of Hawai'i (HCDCH), *Kūhiō Park Terrace/Kūhiō Homes Master Plan Report* (Honolulu: HCDCH, 2000), 14.

²⁰¹ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 188-189.

²⁰² Rensel, "Introduction," in *Home in the Islands: Housing and Social Change in the Pacific*, 22.

facilities, an outdoor Samoan *fale* and office space for medical and social services.²⁰³ Kūhiō Park Terrace Family Center has been located within the complex for years helping the families in this community. This organization works to prevent homelessness, promote literacy and English language skills, and to build computer skills through the KPT Community Technology Center.²⁰⁴ Another non-profit organization located in the community center is the Samoan Service Providers Association (SSPA). They reach out to potential entrepreneurs and help them with job training, business training, business incubation and even the provision of temporary office space for start-up businesses.²⁰⁵

PROJECT SIZE

Site Area:	8.8 acres
Unit Number:	614
Density:	70 units/acre
Building Type:	High-rise, multifamily low-rise, low-rise duplex and single-family dwelling
Building Height:	16-story, 2-story and 1-story

It is a 614-unit housing complex consisting of two 16-floor high-rise towers, eight 2-story apartment buildings, four 1-story duplex buildings and 2 single-family dwellings. The Y-shaped towers house approximately 3,500 residents in one to three bedroom units, while the low-rise developments have four bedrooms.²⁰⁶ Sixty-four of its units in the towers sit vacant due to major structural and maintenance problems.²⁰⁷ Figures 65 and 66 list the buildings on site and their respective unit types, numbers and square footage (sf).

In addition to the residential units, the other buildings and recreation facilities that exist on the site include: a community center building, a family education center building, a recreation/teen center building, two Parents and Children Together (PACT) headstart

²⁰³ Pacific Magazine, "HAWAII: Islanders' community center opens, July 4, 2003," <http://www.pacificmagazine.net/news/2003/07/04/hawaii-islanders-community-center-opens> (accessed December 7, 2007).

²⁰⁴ Parents and Children Together (PACT), "A Family Service Agency," PACT, http://www.pacthawaii.org/family_centers.html (accessed December 7, 2007).

²⁰⁵ Craig T. Kojima, "Samoan Business Center opens its doors to other Hawai'i groups," *Honolulu Star-Bulletin*, July 12, 2000, <http://starbulletin.com/2000/07/12/business/story1.html> (accessed December 20, 2007).

²⁰⁶ Council on Foundations, "FN&C Now, February 27, 2006," Council on Foundations, <http://www.foundationnews.org/now/volume7.10.htm> (accessed December 7, 2007).

²⁰⁷ Mary Vorsino, "Public Housing Awaits Repair," *Honolulu Star-Bulletin*, March 28, 2005, <http://starbulletin.com/2005/03/28/news/story1.html> (accessed December 7, 2007).

buildings with tot lot, two basketball courts, two deteriorated and unused basketball courts, a softball field, a community garden and picnic area.²⁰⁸

This project is the exact opposite of Newman's recommendation for project size for low-income housing. First of all, the project is well beyond the maximum of 24 units per site limit. In addition, across the street is another public housing development that adds another 134 low-income dwelling units to the site context.²⁰⁹ Newman argues that the concentration of public housing developments isolates and stigmatizes the tenants but also increases the crime level. In terms of crime, KPT has had a high level of crime over the years, including deaths where two people were thrown off the balconies of the high-rise towers. The local public housing agency says that some of their staff will not go to this site because they are scared for their safety.²¹⁰

Although the project does offer some variety in building type, the majority of the dwelling units are within the high-rise towers. Again, Newman has correlated the taller building heights with increased crime and KPT is an example of these findings. The nature of this building type is that they have a smaller building footprint allowing for more open grounds area. This concept seems like an appropriate environmental response by reducing the building footprint to allow for more green space, however, it has negative impact on the tenants. The two high-rise towers are referred to as "vertical villages" and are in extreme contrast with the housing types many of the residents are familiar with, as they do not allow for the communal interactions.²¹¹ The tenants are isolated within their "vertical villages" and have no connection to the open grounds. This frustrates the residents at KPT because they have no means to control those spaces socially.²¹²

PUBLIC AREAS

Again, this project contradicts Newman's recommendations considering public areas. As mentioned, the site grounds are public spaces because no one claims responsibility for those areas. They do not claim responsibility because none of the units are assigned

²⁰⁸ HCDCH, *Kūhiō Park Terrace/Kūhiō Homes Master Plan Report*, 8.

²⁰⁹ HCDCH, *Kūhiō Park Terrace/Kūhiō Homes Master Plan Report*, 11.

²¹⁰ Interview with Hawai'i Public Housing Project Manager, interview by Claire Rohlinger, Honolulu, HI, December 20, 2007.

²¹¹ Rensel, "Introduction," 23.

²¹² Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 188-189.

to the grounds in the form of front or back yards. The expansive grounds essentially are open public park space.

In the interior of the building, the common areas of circulation are also public spaces due to the high number of people using them. The first floor of the Y-shaped high-rise towers consists of an elevator lobby with mailboxes, 10 dwelling units, a manager's office, three laundry rooms, machine and carpentry shops and mechanical rooms. The second through the sixteenth floors each have 15-18 units, a common trash room and elevator lobby. Stairs connect the levels at each end of the Y extensions and in the center where they converge. This configuration provides two elevators at the center of the layout for the entire high-rise building to share, which is almost 300 dwelling units. Newman advises that only up to six families should share an entry. Clearly the towers exceed this and therefore these circulation areas are considered public. As it is with the exterior spaces, no one claims responsibility for these internal public areas because they are not considered part of their personal space. In addition, due to the sheer number of people, it is difficult for a resident to ascertain if a stranger is in the building. It is not possible for them to know all of the people in the building, much less even on their own floor. As a result, crime is an issue within the building as well as outside of it.

Complicating the issues of crime within the building is the backlog of maintenance problems creating unsafe environments. Deborah Taamu, President of the resident association at KPT, spends a significant amount of her time dealing with maintenance problems. The elevators constantly break down and don't get fixed for weeks or months. Tenants with problems wait even longer; one woman who waited two years to have her leaky roof and broken door fixed.²¹³ From the management's point of view, the tenants are sometimes the ones who break the elevators and the delay in fixing them is considered tough love in an attempt to teach them a lesson. This approach was taken after the nurturing approach failed.²¹⁴

SECURITY

It has been established that security is an issue at KPT. One of the issues is that the grounds and the street are a stage for gang solidarity and antisocial behavior.²¹⁵

²¹³ Mary Vorsino, "Public Housing Awaits Repair."

²¹⁴ Interview with Hawai'i Public Housing Project Manager, December 20, 2007.

Although tenants may be able to observe the grounds from their dwelling units as Newman prefers, they are so far removed from them being in a high-rise. Therefore, there is little to no connection between them and the activities taking place outside. Another factor that may allow for the illegal activities is the location of the high-rise towers on the site. Building A sits back from Linapuni Street approximately 240 feet and Building B is about 150 feet back. These distances are significantly beyond Newman's 25-foot maximum setback. When there is less connection to the street, the police have a difficult time patrolling the entries to the buildings. Also, pedestrians must travel greater distances from the street to the building entry, thereby increasing their risk of being victimized in a public, unprotected area.

Security gates and fences are in place to restrict access to the property, but those who are determined to enter the property can still gain access through the canal and over the fences. In 1993, a community policing effort began and has improved the sense of security and safety at KPT. Residents were trained by Honolulu police officers and conduct nightly patrols and enforce a 10:00 p.m. curfew. According to Lui Faleafine, KPT Project Manager, "Today, for instance, you won't find drugs on the streets at Kūhiō Park Terrace. Sure, it's in the house, but you won't find any dealing on the streets."²¹⁶

PARKING

The three parking lots that serve the towers meet Newman's recommendations of being at least 10 feet away from the building. They are all located between 12 and 40 feet away from the buildings. The setback from the building, according to Newman, allows the tenants to observe the parking lots from within their units giving them greater control over this area. Although this project generally meets the technicalities of this requirement, it does not meet the intent due to other factors. The high-rise character of the buildings and their Y-shape do not allow all of the tenants to have a view of the parking. For those with a view, they have minimal control over these lots because they are so far removed from the ground level. Also, these lots serve thousands of people making them expansive areas. The parking lot adjacent to Building A spans the length of 500 feet. A lot of this size is extremely difficult space to control from within most building types much less from within a high-rise.

²¹⁵ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 188-189.

²¹⁶ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 191.

WALKS

The walkways on the project site appear to be excessive and not all of them are well used according to Figure 62. Multiple paths link the buildings to each other and to the site features rather than having only the direct paths required for circulation. Numerous path options mean that some will be less traveled, therefore opening up the opportunity for inappropriate activity to take place. This layout puts those traveling the less populated paths at greater risk than if they walked those with more people on them. Similar to the parking lots, these paths may be viewed from within the units but the connection to them is limited offering restricted social control.

GARBAGE AND REFUSE STORAGE

Garbage storage at KPT is an issue according to Newman's guidelines. Each floor or up to 18 dwelling units share a trash room that has trash chutes. This is a concern for Newman because he has found that large dumpsters in most public housing projects are always overflowing with trash attracting rats and roaches.²¹⁷ Newman suggests that each family be responsible for their own garbage cans. This is not possible in a high-rise living situation like KPT, however an improved arrangement would provide a trash room for each wing, totaling three rooms per floor. Therefore, only up to 6 units would be sharing the space and there might be a greater sense of responsibility to keep that area clean. This sense may be simply a desire to keep the space clean or it may be out of shame because the neighbors will most likely know who is not properly disposing of their trash.

PLANTING

The landscape plan and the images of KPT give an impression of the landscaping at the project site. The landscape plan in Figure 63 shows small trees surrounding the high-rise building and shade and palm trees intermittently dispersed throughout the site and parking lots. It does not appear from the images that the plantings inhibit the views of the entries of the buildings or of the walkways, as the trees are tall enough to allow transparency. In some cases, the trees close to the buildings do interfere with the views from within the units to the surrounding grounds.

²¹⁷ Newman, *Creating Defensible Space*, 90.

BUILDING CHARACTER

The character of the building does not fit in well with that of the surrounding neighborhood. It appears as an institutional building because the surrounding housing types are typically one- to two-story single-family homes. The high-rise towers stick out noticeably. The implication of this is that the residents may feel isolated from the community. The high-rise building type is not conducive to interacting with a neighborhood community because the people are up in the towers disconnected from everything else. Low-rises offer the possibility for creating relationships amongst neighbors as people have a direct connection to the outdoors and people. For example, people may sit on a porch outside their unit to enjoy the weather. This condition puts them physically in the view and interaction range of other people.

CONCLUSION

The overriding conclusion to this case study is that the high-rise towers do not work. It is a living environment that is crime ridden inside and out. According to a Project Manager at Hawai'i Public Housing, KPT is one of a few remaining high-rise public housing developments in the nation. Since the demolition of Pruitt Igoe, studies have shown repeatedly that these building types are not suitable for this socioeconomic group.²¹⁸ The project size is overwhelmingly large and public spaces prevail, both creating an unsafe environment for the residents.

²¹⁸ Interview with Hawai'i Public Housing Project Manager, December 20, 2007.

YORKSHIRE TERRACE
Los Angeles, California



Figure 68: Front Facade
<http://www.designadvisor.org/gallery/yorkshire.html> (accessed December 7, 2007).



Figure 69: Front Façade Main Entry
<http://www.designadvisor.org/gallery/yorkshire.html> (accessed December 7, 2007).



Figure 70: Interior Courtyard
<http://www.designadvisor.org/gallery/yorkshire.html> (accessed December 7, 2007).



Figure 71: Interior Courtyard
<http://www.designadvisor.org/gallery/yorkshire.html> (accessed December 7, 2007).



Figure 72: Aerial View of Site & Context
Google Earth (accessed December 21, 2007).

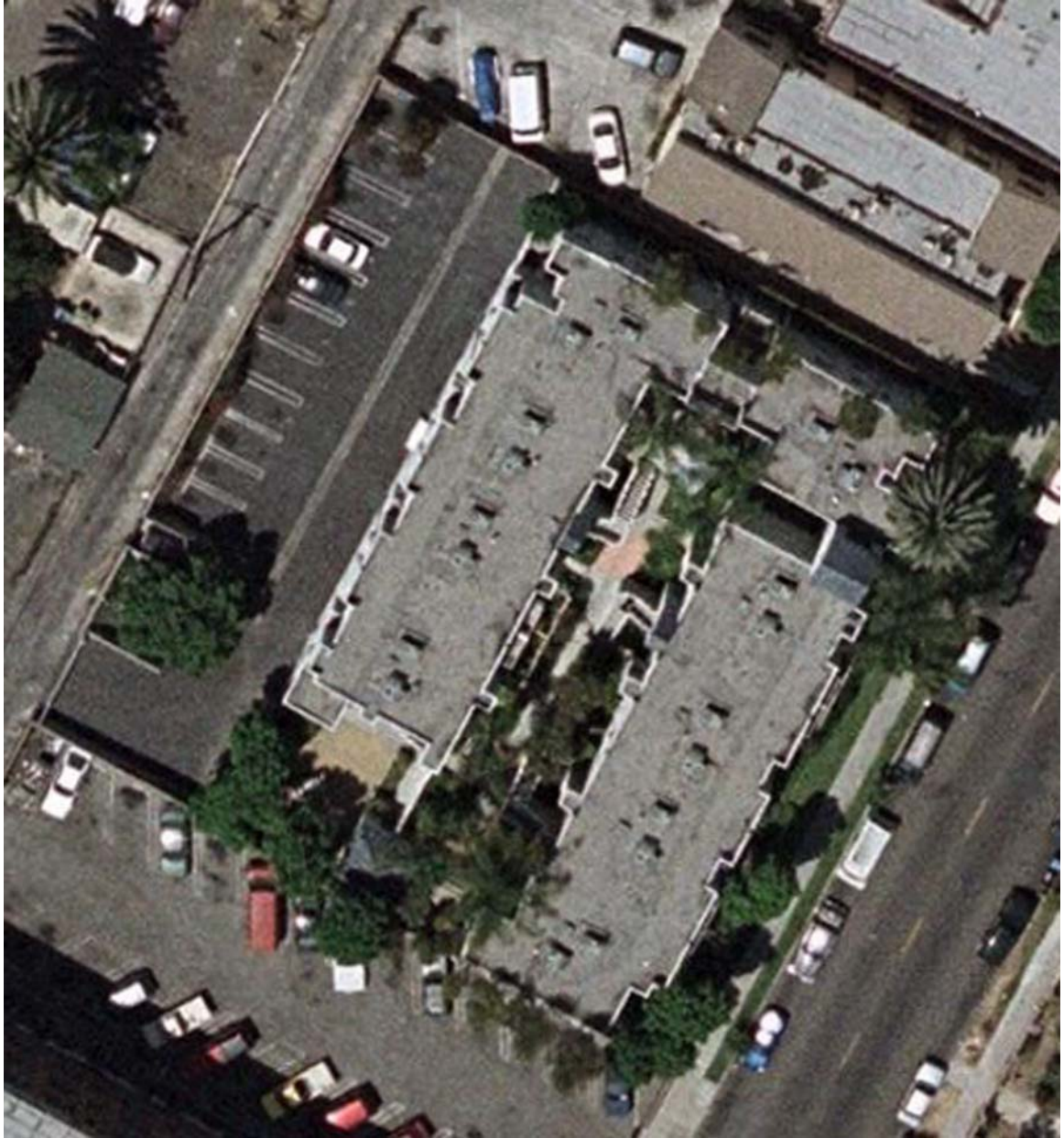


Figure 73: Aerial View of Site
Google Earth (accessed December 21, 2007).

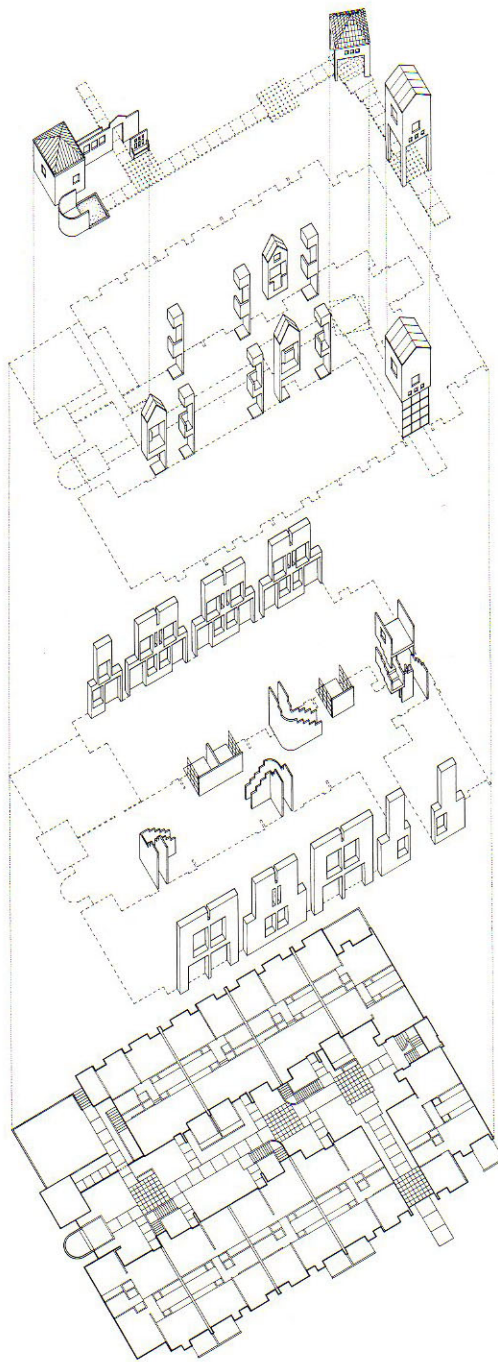


Figure 74: Zones of Inhabitation
Davis, *The Architecture of Affordable Housing*, 92.

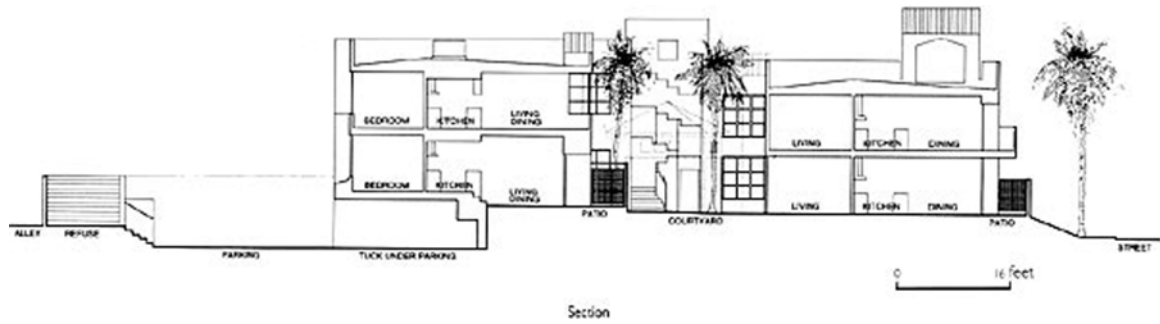


Figure 75: Section
<http://www.designadvisor.org/gallery/yorkshire.html> (accessed December 7, 2007).

Owner: Pico Union Housing Corp.
Developer: Housing Development Services, Inc.
Architect: John V. Mutlow, FAIA, Architects
Current Use: Public rental housing & community service providers
Completed: 1987

PROJECT DESCRIPTION

Yorkshire Terrace is an infill development in Los Angeles's largely Hispanic, Pico Union community. It is located in a redevelopment area within the city and houses low-income tenants. The profile of the community is as follows:

- Pico Union/Westlake is home to 19,350 residents with 95% living in rented dwellings.
- Over 75% of the population is Latino with 95% reporting that Spanish is spoken at home.
- Compared to 18.8% city wide, 35% of the Pico Union/Westlake population lives in poverty.
- Approximately half of Salvadorian/Guatemalans have less than an eighth-grade education.
- The Latino drop out rate for Belmont High School is 82% compared with Belmont's overall drop out rate of 22%.²¹⁹

The average median family income in this area is \$22,908, 42.3% of the Metropolitan Statistical Area Median Family Income. A Median Family Income of 50% or less is considered low-income level, therefore approximately 43% of the population is living below the poverty level. A census tract with a poverty level of 20% or above is considered a highly impacted and underserved area. At 43%, Pico Union is clearly falls into this category.²²⁰

²¹⁹ Pico Union Housing Corporation (PUHC), "Pico Union Area Demographics/Statistics," PUHC, <http://www.puhc.org/demograf.html> (accessed December 19, 2007).

²²⁰ PUHC, "Pico Union Area Demographics/Statistics," (accessed December 19, 2007).

PROJECT SIZE

Site Area:	0.52 acres
Unit Number:	18
Density:	35 units/acre
Building Type:	Stacked flats
Building Height:	Two-story

The two-story wood frame and stucco housing development consists of the following unit type, square footages and rents:

Type	# of Units	Size (sf)	Rent
2 BR	18	827-839	\$74 - \$601

In addition to the units, the project includes a 150 sf laundry area, 3,008 sf courtyard, 360 sf tot-lot, 160 sf stage, 144 sf gazebo, 575 sf patio and 155 sf roof terrace.²²¹

This housing complex complies with Newman's recommendations in terms of building size. The total number of units is less than 24, which helps create integration of the complex with the surrounding neighborhood rather than the isolation exhibited in the high-rises at KPT. The two-story height and building type are also appropriate according to Newman's Defensible Space concept. The architect, John V. Mutlow, believes that housing for families should be limited to two stories. This arrangement provides easy access to the outdoors, which is a particularly important feature for children accessing their play space.²²²

PUBLIC AREAS

The stacked two-bedroom flats are organized around a central linear courtyard. A courtyard is not advisable by Newman as it can be considered a public space if no one takes responsibility for it. In this case, the courtyard can be considered a defensible space. It provides the main circulation of the complex leading to individual entries for each of the dwelling units on the ground level and a shared stair and landing for every

²²¹ Affordable Housing Design Advisor, "Yorkshire Terrace, Los Angeles, California," <http://www.designadvisor.org/gallery/yorkshire.html> (accessed October 9, 2007).

²²² Affordable Housing Design Advisor, "Yorkshire Terrace, Los Angeles, California," (accessed October 9, 2007).

two units on the upper level. Note that these are preferred conditions according to Newman for multifamily developments.

This pattern of circulation and specific assignment of circulation space to particular units creates a sense of control over these spaces by the tenants. This control extends out into the courtyard space, which essentially takes the place of the individual front yards that Newman recommends. The stairways leading to the second level reinforce this notion. They protrude into the linear courtyard space defining smaller court areas that feel as if they belong to only a few of the units rather than the total of eight on that level. These spaces should be considered semi-private and even private as one approaches a unit's entry.

Although the units do not have rear yards, there is a suggestion of it in the design. The lower units along the front façade have a small private outdoor patio space enclosed by a low wall and the upper level units all have balconies providing some connection with the outdoors directly from their dwellings. This approach hints at assigning outdoor areas to individual units, which creates a greater zone of privacy around the building.

As the entries to the units are within the courtyard, they do not comply with Newman's goal to have them all directly off the street. However, the main secured entrance to the courtyard that is identified with a gazebo is located directly off the street in clear view. Given the high level of criminal activity in the area and that the tenants are primarily families with children, the decision to have the unit entries within the courtyard is a measure of additional security. These secure doors are protected by a secured courtyard entrance, which acts as the primary deterrent to potential criminals.

SECURITY

Security in the area is a major concern due to neighborhood gang activity. As mentioned, a single secured entry gate is provided from the street and secured parking is in the back of the site lot as a combination of tucked under and open parking. The main gate is setback 17 feet from the street, which is within Newman's distance of 25 feet. This increases the security of the building as the entry is easily observable by neighbors and passing law enforcement. Although the entries are secure, the low walls

in the front of the parking have proved to be too short. People have climbed over them and stolen things from the cars.²²³

Considering Newman's requirement that tenants shall be able to observe their front and back yards from within their units, this is possible within this building complex. Consideration was given to the building/street and building/courtyard relationships and their effect over the control of these areas. Bay windows and balconies on the facades allow tenants to observe the activities at the street front and within the courtyard. These features also create awareness amongst the users of the outdoor spaces of the possibility of being observed. Overall, these considerations create a safer environment for the residents.

PARKING

The 23 parking spaces provided at the back of the building site and underneath the back units do not quite meet Newman's requirements because not all of it is observable from within the units nor do all of the units have the ability to see any of it. This is due to the nature of the courtyard building. Unless the parking is within the courtyard or on more than one side of the building, not everyone is going to have viewing capabilities of it. The precaution taken was to provide secured parking, however, as mentioned previously, the low walls surrounding it are not impenetrable. This issue may be resolved by increasing the wall heights as Newman suggests.

WALKS

The walks provided to the building and within it are safe convenient paths that provide direct access to the building units. The site is not very large and the courtyard building type reduces the likelihood of unnecessary or duplicate paths. The paths provided are all within view of the occupants and their neighbors, which again increases the safety of them.

GARBAGE AND REFUSE STORAGE

The refuse area for the complex does not comply with Newman's ideals. It is a communal garbage area located along the rear of the site at the edge of the alley. The

²²³ Affordable Housing Design Advisor, "Yorkshire Terrace, Los Angeles, California," <http://www.designadvisor.org/gallery/yorkshire.html> (accessed October 9, 2007).

communal garbage may not be an issue however because the number of units using it is rather limited. It is not like KPT where 18 units are sharing one garbage chute with 16 other floors of 18 units each, which makes blockage and overflowing inevitable. Newman's idea of individual garbage storage areas does not work well within the courtyard building type where the units have only one entry that is located within the courtyard. Individual storage could take place within the courtyard but it is not a pleasant concept to store garbage within a confined court area, particularly one that is long and narrow. However, this configuration would likely encourage people to keep it clean.

PLANTING

Mostly, the plantings at the building do not interfere with the visibility of the doors and windows of the units. However, the palms located at the main courtyard entry are currently at the height that obscures the view of this front entry. This condition is not good because it creates an environment where a perpetrator could easily hide from view. The fact is though that these are palm trees that will continue to grow much higher than the entry and that this condition is temporary.

BUILDING CHARACTER

In terms of building image, Yorkshire Terrace is not in the least institutional looking. Its facades are a modern interpretation of the architectural history of the Los Angeles region and its scale fits in the existing context of the two-story homes surrounding it. Many of these homes had been converted to four-unit apartment houses, providing an even more appropriate context for a low-rise apartment building.²²⁴

The architect also took great care in creating varying levels of privacy in the façade design. He conceptualizes this approach as zones of inhabitation as seen in Figure 74. The outermost zone is the public space defined by the building and filled with landscaping and parking. Moving closer to the structure, the zone becomes more private, encompassing the patios and entries to the dwellings or courtyard, often emphasized by a freestanding wall. Farther in is the façade, which he conceptualizes as a zone thirty inches thick. Within this zone, he simply manipulates a few elements to

²²⁴ Affordable Housing Design Advisor, "Yorkshire Terrace, Los Angeles, California," (accessed October 9, 2007).

distinguish each dwelling unit and thereby creating special interior/exterior occupant spaces. As seen in Yorkshire Terrace, the balconies project out and are contrasted by the recessed openings. These areas provide a variety of benefits including an outdoor area for the resident, shade to the lower patios and relief and interest to the street and courtyard facades.²²⁵

Objects and forms in front or attached to buildings, as in the case of Yorkshire Terrace, enliven the housing both visually and functionally. Fences, trellises and porches are parts of architecture that people see, feel and use and ultimately humanize a dwelling. They give it an understandable and approachable scale. These features are not expensive and their use need not be consistent or recurring. An occasional variation in window size, a few projecting elements and even variation in color and materials are simple gestures that embellish an otherwise mundane box.²²⁶

CONCLUSION

Yorkshire Terrace is an affordable housing example that has implemented many of Newman's Defensible Space strategies successfully. It has created a safe environment for its inhabitants in an unsafe neighborhood. Michael Cracraft of the Los Angeles Community Redevelopment Agency noted, "We strongly encouraged Pico Union. The building is definitely an improvement on the surrounding area and sets a high standard."²²⁷

²²⁵ Davis, *The Architecture of Affordable Housing*, 93.

²²⁶ Davis, *The Architecture of Affordable Housing*, 93-94.

²²⁷ Affordable Housing Design Advisor, "Yorkshire Terrace, Los Angeles, California," (accessed October 9, 2007).

LANGHAM COURT Boston, Massachusetts



Overview of city with Langham Court Goody Clancy & Associates

Figure 76: Site Overview

<http://www.designadvisor.org/gallery/langham.html> (accessed December 18, 2007).



Figure 77: Rowhouse Front Facade
http://www.goodyclancy.com/html/proj_descr.asp?pageid=1163 (accessed December 19, 2007).



Figure 78: Front Facade

http://www.goodyclancy.com/html/proj_descr.asp?pageid=1163 (accessed December 19, 2007).



Figure 79: Rowhouse Gables
http://www.goodyclancy.com/html/proj_descr.asp?pageid=1163 (accessed December 19, 2007).



Figure 80: Courtyard Entry
http://www.goodyclancy.com/html/proj_descr.asp?pageid=1163 (accessed December 19, 2007).



Figure 81: Courtyard Overview

http://www.goodyclancy.com/html/proj_descr.asp?pageid=1163 (accessed December 19, 2007).



Figure 82: Courtyard

http://www.goodyclancy.com/html/proj_descr.asp?pageid=1163 (accessed December 19, 2007).



Figure 83: Rear Yards
<http://www.designadvisor.org/gallery/langham.html>
(accessed December 18, 2007).

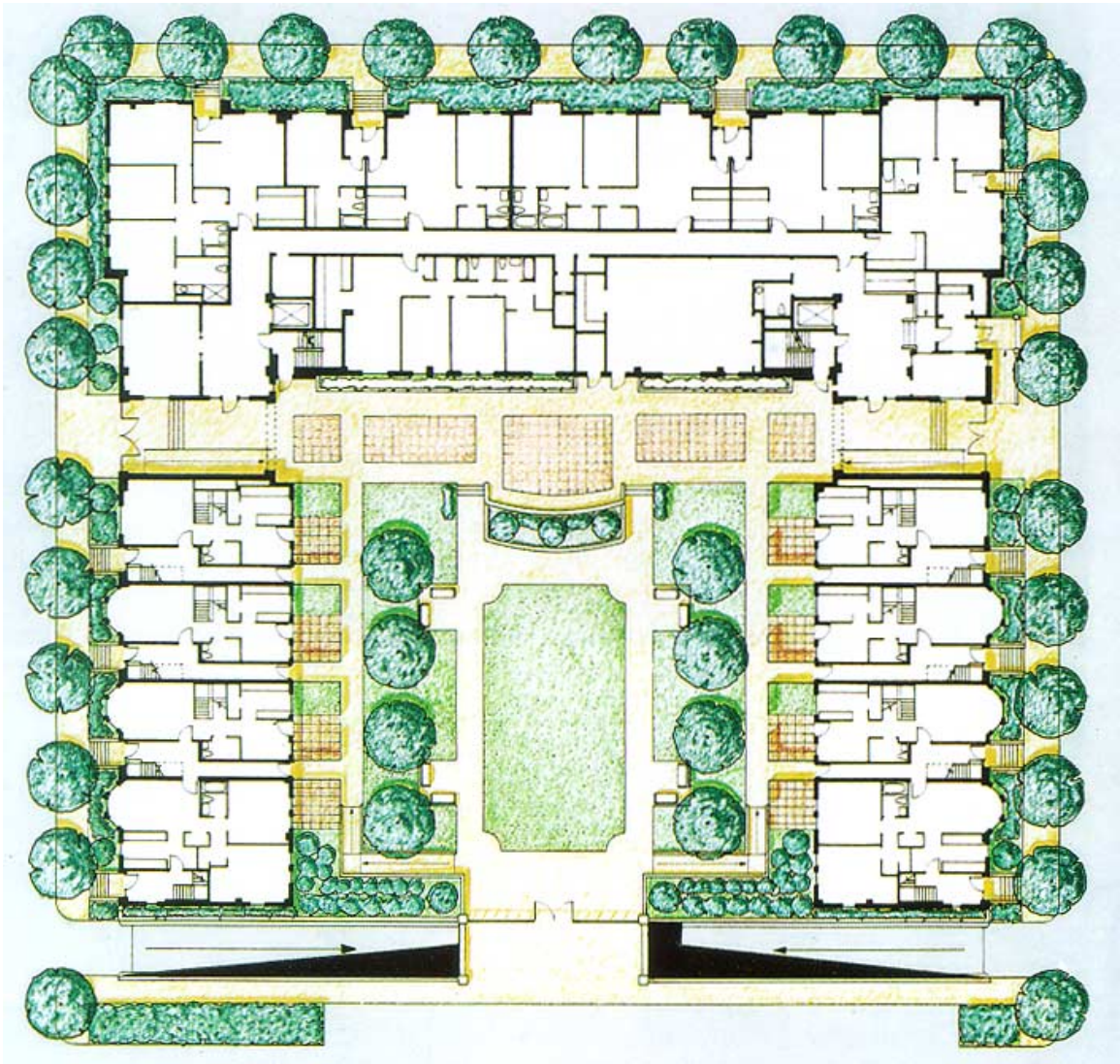


Figure 84: Site Plan
<http://www.designadvisor.org/gallery/langham.html> (accessed December 18, 2007).

Owner/Developer: Four Corners Development Corporation
Architect: Goody Clancy and Associates
Current Use: Mixed-income rental
Completed: September 1991

PROJECT DESCRIPTION

Langham Court is an award-winning urban infill housing development that utilizes best practices in affordable housing design. This residence houses a mixed-income community located in Boston's South End National Historic District. The tenants are families and singles with incomes ranging from very low to median or market-rate. One third of its units are heavily subsidized low-income family homes earning less than 50% of area median income (AMI); one third are at 50-80% of AMI and are partly subsidized; and one third are at market rate. The area median income for a family of four is \$53,100.²²⁸

PROJECT SIZE

Site Area: 1.03 acres
Unit Number: 84
Density: 81.5 units/acre
Building Type: Combination stacked townhouses & elevator mid-rise apartment
Building Height: Four-story townhouses & five-story apartment

The development consists of apartments ranging in size from studio flats to three bedroom two story townhouses. Below is a list of all the unit types, square footages and rent:

Type	# of Units	Size (sf)	Rent
Studios	15	300	\$422 - \$503
1 BR	29	630	\$492 - \$803
2 BR	26	840	\$595 - \$1,029
3 BR	14	1,150	\$752 - \$887
Total	84		

²²⁸ Goody Clancy, "Langham Court," under "Architecture/Housing," http://www.goodyclancy.com/html/proj_descr.asp?pageid=1163 (accessed December 19, 2007).

In addition to the units, the development has 8,800 sf of courtyard space, 23,060 sf of parking and 1,253 sf of community space.²²⁹

This project is over three times the size, in terms of number of dwelling units that Newman recommends for a building with a low-income demographic. However, this particular project has market rate units dispersed within it creating a different dynamic. Despite the larger size, the tenants do not feel isolated or stigmatized due to the mixed-income component.

The building offers a different take on building type by combining the mid-rise apartment with the stacked townhouse. This approach was taken for two reasons. First, it was to achieve a higher density that could not be yielded from the use of only rowhouses, the preferred form. Second, the developers wanted to offer a variety of unit sizes that would be difficult to achieve within the limitations of a walk-up townhouse.²³⁰

The height of the buildings exceeds Newman's guideline but again, the mixed-income component challenges his recommendation. The lower height levels are preferred for low-income families because his studies have shown a correlation between building height and crime in low-income neighborhoods. However, his studies did not show the same correlation for mixed-income buildings. In terms of Newman preferring that families with children live in single-family or walk-ups, this project complies as the townhouses are specifically reserved for families with children.²³¹ This gives them direct connection to the outdoors.

PUBLIC AREAS

Newman's idea to eliminate or reduce public areas is challenged by this project with its use of a courtyard space that is less associated with a specific function and more related to its urban context. However, the design of this courtyard was carefully considered to prevent it from becoming a public space without any social control. The courtyard acts a connector between Langham Court and the adjacent existing senior affordable housing project, Washington Manor, thereby completing the block and providing

²²⁹ Affordable Housing Design Advisor (AHDA), "Langham Court, Boston, Massachusetts," www.designadvisor.org/gallery/langham.html (accessed December 18, 2007).

²³⁰ Davis, *The Architecture of Affordable Housing*, 141.

²³¹ AHDA, "Langham Court, Boston, MA," (accessed December 18, 2007).

continuity in the neighborhood.²³² The lower level townhouses satisfy Newman's criteria for assigning areas of the site to an individual family for a specific use. They each have direct front entries from the street and rear access to small private outdoor areas, and the common courtyard beyond. The backyard areas are made private through the use of low fences. "According to Mary Manuel, resident property manager, people use the backyards for sitting out on warm evenings, barbecue storage, growing roses and play areas for small children."²³³ Even the upper level townhomes have a direct entry from the street and direct access to the courtyard space. This is achieved through a shared entry with the unit below. This meets Newman's criteria for shared entries by reducing the number of families sharing the entry to two. As for the apartments, there are eight dwelling units per floor. The lower levels either have a private entry or an entry that is shared between two units. The upper floors are served by two separate elevator cores; one at each end. Two elevator cores is a convenience for the residents but it also meets Newman's shared entry target range with four families each sharing an entry.

SECURITY

The courtyard, which may be thought of as a security risk to Newman, is believed by the tenants to enhance security because the rowhouses have private yards that face it and the lobbies for the apartment block are also adjacent to it. This arrangement populates the courtyard allowing the residents to keep an eye on it. Also, the courtyard is visible from the street and the manager's office, and the unit plans of the rowhouses reinforce this notion with the kitchens and dining areas overlooking the court.²³⁴

In regards to Newman's other standards for this topic, the fronts of the buildings face the street and have a setback of approximately 12 feet, well within the maximum of 25 feet. Observation of the street front and of the courtyard is possible within the townhomes and the apartments. However, within the apartments, there is a double loaded corridor that only permits a unit to have either a street view or a court view. Collectively, the rear yards and the courtyard are secured with wrought iron gates that can be closed at night. The height of the gates appears to be about 6 feet high. Lastly, the building

²³² Davis, *The Architecture of Affordable Housing*, 144.

²³³ AHDA, "Langham Court, Boston, MA," (accessed December 18, 2007).

²³⁴ Davis, *The Architecture of Affordable Housing*, 144.

features front stoops that are elevated creating a greater privacy and security for the lower level units.

In general security has not been a big problem in this development. However, occasionally vandals enter the parking garage when the card reader system fails. Also, as may happen in any building, strangers sometimes tailgate into a main lobby area behind a resident. The resident manager suggests that a camera at the entry lobby hooked up to the cable TV system would give residents more security when buzzing people in, by allowing them to see strangers from within their units and to then call the manager.²³⁵ This suggestion is in line with Newman's to provide the ability for tenants to observe the semi-public spaces within a building. The ability for the tenants to recognize these strangers is due to the reduced number of shared entries created by the building design.

PARKING

The parking for the structure consists of 54 stalls of underground parking. It allows for one car per unit and is secured with a card reader system mentioned previously.²³⁶ The location of the parking does not meet Newman's ideals as it is not visible from the dwelling units. However, the mixed-income component comes into play again and provided for the design of an underground garage with security system that would not normally be included in an low-income project. Elements that are extra amenities to low-income families are often expected elements amongst those of higher incomes. Therefore, to attract these families, amenities like secured parking are included in the project design.

WALKS

Walkways are provided from the street to the courtyard area. These walks are visible from the units and provide direct access to the shared unit entries and community spaces that are located along the courtyard.

²³⁵ AHDA, "Langham Court, Boston, MA," (accessed December 18, 2007).

²³⁶ AHDA, "Langham Court, Boston, MA," (accessed December 18, 2007).

GARBAGE AND REFUSE STORAGE

Individual garbage storage areas are not provided, rather a central area is provided for all of the tenants' waste. This is typically a concern for Newman, however, this may not be an issue in a mixed-income building where the tenants feel a greater sense of responsibility and pride in their building and desire to keep it looking nice and rodent free.

PLANTING

The plantings at this project comply with Newman's goals, as they do not screen doors and windows of dwelling units from the street. The planters are placed between the front stoops and have low ground cover in front of windows. Trees are located along the street front sidewalk and within the courtyard but do not inhibit residents from being able to see outside.

BUILDING CHARACTER

Langham Court succeeds at being a non-institutional looking building that suits the surrounding neighborhood context. The material use, brick veneer, and the architectural features, such as the mansard roof and bay windows, directly relate to the historic character of the surrounding buildings. These features also establish a comfortable building scale by providing relief to the façade. The projection of the building elements and attention to detail reduce the building's perceived size and provide distinction from what is basically a set of boxes.²³⁷

CONCLUSION

Although Langham Court may not follow Newman's Defensible Space guidelines exactly, the housing development is a success story. Much of his design criteria was incorporated directly or else adjusted to suit the density required for the site and to serve the needs of the mixed-income tenant group. Langham Court serves as an example for affordable housing design as it has not only survived, it has flourished in a neighborhood that is afflicted with crime, drugs and prostitution.²³⁸ "As 10 year old Blanca Hernandez wrote in a winning essay sponsored by the National Council of State Housing Agencies,

²³⁷ Davis, *The Architecture of Affordable Housing*, 144.

²³⁸ Davis, *The Architecture of Affordable Housing*, 139.

'I 'specially like living in Langham Court because where I used to live it was a bad neighborhood with drugs everywhere. Here, I really don't see drugs, and it's a good neighborhood, and I can play outside and sleep without worry.'

²³⁹

²³⁹ AHDA, "Langham Court, Boston, MA," (accessed December 18, 2007).

8 PRELIMINARY DESIGN ASSUMPTIONS

The preliminary design assumptions are the parameters of the project derived from the research. They assisted in the development and analysis of the housing design project. Although, this project focuses on serving the housing needs of Samoans in Honolulu, it is not meant to be exclusionary. It is believed that this project pertains to other Pacific Islanders as well, as they share similar societal characteristics. Other cultural groups or individuals who are communal in nature may also benefit from this housing study.

AFFORDABLE HOUSING PROGRAM

Based on the definitions of the three major rental assistance programs, Privately owned subsidized housing, Housing Choice Voucher Program (Section 8) and Public Housing; the program that best suits this DArch project is the privately owned subsidized housing. Realistically, a government agency cannot design public housing for a specific ethnic group, as this would be a form of discrimination. If HUD were to do so, they would have to design housing that meets the cultural values and needs of all ethnicities and this is not feasible or necessarily desirable. However, consideration of the characteristics of healthy communities is essential to the success of any housing project.

Concepts of public housing and village life that emphasize community-based responsibility for child rearing and social control; earning status through service to the community; and performing political, economic and cultural activities in a central, public arena could productively be incorporated into the vision and planning for future public housing in Honolulu and Hawai'i. If this were done well, it would serve not only Samoans but those of other ethnicities as well.²⁴⁰

Particularly in Hawai'i with its multicultural population, housing designed based on Samoan cultural values may be applicable to other Pacific Island cultures that share societal commonalities. Tongans, Chamorros, Fijians and Native Hawaiians also traditionally live in extended family arrangements and those living in Hawai'i still maintain large local family networks as well as ties to their family in their respective home islands.

²⁴⁰ Franco, "From Houses without Walls to Vertical Villages: Samoan Housing Transformations," 185,188.

Also, most Pacific Island households maintain the same flexibility in composition and capacity to absorb newcomers and visitors. These strong social networks are important economically and socially. Typically, the hosts help the newcomers find employment, schools and housing and they also provide advice and important information. This interaction encourages the intense social interdependence that is characteristic of traditional island life.²⁴¹ These cultural groups could benefit, like the Samoans, from housing that is more flexible in nature, accommodating fluctuating household composition.

"Lacking the formal political, village and descent-group organization that defines social life in the islands, Pacific Islanders focus their collective activities in organizations that cut across traditional village and kinship ties."²⁴² The church, particularly for Samoans and Tongans, is the center of social life in Hawai'i. Tongans in the U.S. typically belong to the Mormon church while Samoan migrants belong to various churches including Congregational Christian, Methodist church, Seventh-Day Adventist, Presbyterian, Pentecostal, Catholic and Mormon. Most Chamorros are Catholics and Fijians are mostly Hindu and Muslim.²⁴³ Housing that is more communal could allow them to extend the social atmosphere found at church into their homes as well, similar as it is in their home islands. Including an open area within a housing development for cultural activities would encourage community amongst the tenants and can be shared across several Polynesian cultures. Similar in significance to the Samoan *malae* is the Tongan *malae*, the Marquesan *tohua* and the Maori *marae*.²⁴⁴ A *malae* type of space would also provide a setting conducive for shared child rearing that is found amongst the Polynesian cultures.²⁴⁵

POTENTIAL DEVELOPERS

In the case of this project that has a focus on a specific cultural group, potential developers must be outside of the U.S. government. However, the project may

²⁴¹ Stephan Thernstrom, *Harvard Encyclopedia of American Ethnic Groups*, (Cambridge: Harvard University Press, 1980), 767.

²⁴² Thernstrom, *Harvard Encyclopedia of American Ethnic Groups*, 767.

²⁴³ Thernstrom, *Harvard Encyclopedia of American Ethnic Groups*, 767.

²⁴⁴ Polynesian Cultural Center (PCC), "Marquesas: The Tohua," PCC, <http://www.polynesia.com/marquesas/tohua.html> (accessed December 17, 2007).

²⁴⁵ James Ritchie and Jane Ritchie, "Polynesian child rearing: An alternative model," *Journal of Family and Economic Issues* 5, no. 3 (March 1983), <http://www.springerlink.com/content/l6pw466558571m95/> (accessed December 22, 2007).

participate in the Section 8 program. A local Public Housing Authority (PHA) contracts with a private developer who builds a project on the developer-owned site that will provide a portion of its units as affordable housing units for Section 8 tenants. This particular housing will be designed with Samoans in mind but will not be exclusive to them. In addition, this housing project will not be exclusive to Section 8 tenants due to the regulation put forth by HUD that except for units designated for families that are elderly, disabled, or receiving supportive services, no more than 25 percent of units in a multifamily building may have project-based voucher assistance.²⁴⁶ The mixed-income component to this project will be advantageous to the low-income tenants. There is research evidence that supports the importance of living in a healthy, mixed-income community in breaking the cycle of poverty than simply living in an isolated income development.²⁴⁷

Due to high costs of construction, labor and land in Hawai'i, a project like this is more likely to be realized with funding from public interest groups. Donated funds and donated land will be a statement of those interest groups that they support the promotion of a lifestyle suitable to Samoans and other interested cultural groups. Potential developers for this project are likely to be nonprofit organizations that are advocates for migrant Samoans or for other Pacific Island immigrants. These groups are dedicated to improving the lives of Pacific Islanders living in a foreign culture. There are multiple organizations in Honolulu who aim to help Pacific Islanders adapt to Hawai'i and the urban lifestyle. These agencies include Samoan Service Providers, United Samoan Organization of Hawai'i, Council of Samoan Chiefs and Orators in Hawai'i, Pacific American Foundation and Pacific Islands Development Program. Some of these organizations may be interested in developing this project.

Other potential developers or investors are church groups or private benefactors. As mentioned previously, churches provide a major support network for Samoans, and some churches have outreach organizations that serve their client base. The profile of an interested private developer is that of one whose bottom line is not only financial but

²⁴⁶ U.S. Department of Housing and Urban Development, "Programs of HUD: Major Mortgage, Grant, Assistance, and Regulatory Programs, 2006," 79.

²⁴⁷ Alastair Smith, "Mixed-Income Housing Developments: Promise and Reality," 2002, <http://www.nw.org/network/pubs/studies/documents/mixedIncomeStudy2002.pdf> (accessed December 18, 2007).

also considers community and social goals. Often, a developer of this type shares the ancestry of the cultural group that they are helping.

Overall, utilizing the project-based voucher program for this project benefits both the developer and the tenant because it offers flexibility. For the developer, the HUD housing quality standards are performance based rather than prescriptive, which allows for more flexibility in the project design. For the tenants, the program permits them to find their own housing options compared to public housing where they are simply assigned a housing unit. With Section 8, they can seek out housing that specifically meets their cultural values and family needs.

CLIENT GROUP REQUIREMENTS

In order to accommodate the larger size of a U.S. Samoan family that averages 4.1 people, the housing unit must be sized accordingly.²⁴⁸ Within the housing unit, space for housing visiting guests must also be accounted for since Samoan families are frequently hosting others from abroad or those in need. However, despite the need for additional sleeping areas, the resolution does not mean that each unit's square footage must be increased significantly from the standard size. Rather, provision of communal areas outside the unit while reducing the size of the interior communal areas will serve Samoans well. They are a communal and social culture that prefers to interact with the larger community, not just their own nuclear family. Most likely these social areas will be used just as much or more than the interior of the residential units. This requirement knowingly contradicts Newman's Defensible Space principles but is most appropriate given this particular ethnic group. Lack of ownership over undefined public spaces is not an issue with Samoans. Their society is based on being in the public realm and maintaining social control in those spaces. They find it unfitting if there are no public communal areas for them to foster their community activities. Also, these spaces will give them the open and transparent character needed that affords their methods of social control.

Given that the project is in an urban environment in Honolulu, it is necessary to employ other aspects of Newman's Defensible Space principles to ensure the personal safety of the residents. It is appropriate to limit the size of the communal spaces and to restrict

²⁴⁸ APIAHF, *Diverse Communities, Diverse Experiences: The status of Asian Americans & Pacific Islanders in the U.S.*, 2005, 2.

access to only the residing tenants and their guests. This measure will allow them to live their lifestyle in a more traditional Samoan way while being protected. For example, children may play in the open areas under the supervision of the extended family or community with the safety of being in a secured area. Gardens shall also be incorporated into the housing design to allow those who desire to grow their own food. Samoans as a culture are agrarian people.

Samoans are also very proud of their culture and try to perpetuate it wherever they live. The *matai* or chief system is one way of perpetuating their culture. The main principles of this system are keeping family together, solidarity of community goals, sharing and helping one another. This system exemplifies the Samoan society and reinforces the importance of acting as a communal whole. In the housing design, it is important to accommodate the *matai* system by providing gathering space large enough for the entire residential community within the development. This space can be used for cultural gatherings in addition to everyday activities.

In terms of site selection, it is important that the site be in a community that has an established Samoan base to foster the social aspects of the Samoan way of life. Church activities are integral to their daily lives and choosing a site in close proximity to a Samoan church will better facilitate these activities. The church may also serve as a ceremonial activity location.

HOUSING TYPE

Based on the client's customary living arrangements, Newman's Defensible Space concept and the case study analysis, the garden apartment is the most appropriate housing type. A garden or low-rise apartment has 12 – 40 units, 3 floors and a net site density up to 80 units/acre.²⁴⁹ This housing type features characteristics that are directly in line with the communal lifestyle of Samoans. Typically, units are accessed by means of interior hallways and the surrounding grounds are shared spaces amongst the residents.

The number of units for this housing type is beyond the project size of 24 units, which Newman suggests as the maximum number of units per site. However, this

²⁴⁹ Corridor Housing Initiative, "Housing Types," 2005, 5.

recommendation is based on a housing project that houses only low-income tenants. He stresses that there is an attached stigma to these types of projects and they become more isolated the larger they are in size. This project is a mixed-income project, which Newman does not associate with the same stigma. Therefore, the low-rise apartment with a higher unit count does not contradict his theory.

The housing type also offers opportunities to limit public areas through strategies as seen in the Yorkshire Terrace case study. This project maximizes the use of the site by building out to the required setback lines and provides secured entries into the complex. This approach reduces open space surrounding the building that has the potential to become public space with no social control. The project also features semi-private communal areas in a courtyard setting. This design allows for social interaction but in a protected environment. These features enhance the overall security and social control of the housing development.

The garden apartment housing type also allows for larger unit sizes that can provide an extended family living situation in a low-rise setting. The lower building height falls into line with Newman's correlation that less crime occurs in smaller scale buildings. This is important to this community particularly because they want to reduce their youths' involvement in criminal activities. The lower building height also provides a comfortable human scale to the development. This means that there is a strong connection to the street pedestrian and amongst the tenants living in the building. The goal is that residents know each other and interact on a frequent basis. A smaller scale building provides an intimate environment that encourages these relationships to form. The building types also offer the possibility of incorporating an open area for communal activities, possibly in the form of a courtyard like the case study examples.

The site density of the housing type is suitable compared to existing and future low-income developments in Honolulu. Existing developments in Kalihi range from 19 units/acre to 39 units/acre. Up and coming developments in other areas of the island

outside of Honolulu range from 12 units/acre to 55 units/acre.²⁵⁰ The actual density of the project is informed by the program requirements and site selection.

The housing type is also in line with Newman's Community of Interest design theory. A low-rise development with communal areas like gardens and courtyards brings people together creating a positive effect on the social environment of the community. It reinforces the notion of an extended family, which is the Samoan contemporary equivalent. The garden apartment is also suitable for the different age groups within the extended family of the Samoan community. Families are provided safe outdoor play areas for their children that perpetuates the idea of the community raising the children together, which is important in Samoan culture. Also, the elderly are provided with social interaction and a community atmosphere that is desired since they spend a large portion of their time at home.

LAND USE ORDINANCE (LUO)

Some of the City & County of Honolulu's Land Use Ordinance requirements may be challenged by this housing development. If a courtyard building is found to be an appropriate building form, it may not comply with the current code. A single courtyard building may be designed according to the required property line setbacks, but if the concept were used as an urban development model, these setbacks would be eliminated to allow for shared party walls. Also, current development standards for the Apartment District, which this project falls under, require that 40-60% of the site on ground level remain as open space. In a courtyard development, this is not necessary. Open space will be provided but it will be secured open space and dispersed throughout all the levels of the development. This gives all tenants direct access to the exterior and allows for increased density on a smaller site. Courtyards at the roof top level will also offer a place for residents to grow food.

The number of parking spaces will also be challenged. Currently code requires 1.5 stalls for a multifamily dwelling unit that is between 600 – 800 sf and 2 stalls for those over 800 sf.²⁵¹ The dwelling unit sizes for this project are going to be larger to accommodate a

²⁵⁰ Orlando Dan Davidson, "Housing for Hawai'i: Building Dreams," Hawai'i Housing Finance and Development Corporation, http://www.frbsf.org/community/resources/hawaii_housing/housinghawaii_buildingdream.pdf (accessed October 16, 2007).

²⁵¹ DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 6.

larger family size and visiting guests. An increase in square footage for more children and visitors does not equate to adding parking for those who do not require it. A reduction in parking stalls required also decreases the impact the project has on the environment through the promotion of public transportation and the reduction of impervious surfaces at the project site.

PROGRAM DEVELOPMENT

Included in this section is the vision for the housing project development and the initial design guidelines formed throughout the research process. These guidelines were used to develop the project program. Consideration of the client's needs, Defensible Space criteria and lessons learned from the case studies have all informed the design guidelines.

Vision

The vision for this DArch project is the creation of a sustainable, mixed-income housing development that perpetuates a communal lifestyle that serves the cultural and physical needs of its residents. Key elements of this vision include:

- A transparent community-based atmosphere that offers a sense of belonging and that allows for the customary Samoan social living environment.
- A safe and healthy environment that deters criminal activity.
- An economically diverse community that promotes the advancement of the low-income tenants to a self-sustaining community.

Design Guidelines

In determining the programmatic requirements for the project, the Samoan *'aiga* and village serve as inspiration. The *'aiga* is the traditional extended family household and consists of several nuclear family houses with shared communal areas. The village is made up of many households that surround a central *malae* or open space. This project employs the village concept as a strategy for achieving a communal social realm.

Site

- The building scale and façade shall be designed to provide a strong connection with the surrounding site context and street.
- Appropriate density determined by site context shall be met while providing usable open space for community and cultural activities.
- Provide gradation of public to semi-private spaces within the development.
- Provide secure building entries that face public streets and public walkways.
- Provide safe and direct walking paths to the dwelling units and site facilities.
- The parking area must be secured.
- The building shall be secured from the public street by either the building form or with a 6-foot tall fence, according to Defensible Space guidelines.
- Provide a combination of open and protected shared communal space that allows for community activities and daily social gathering. This area shall allow for a shared cooking area that may include a small kitchen, grills and an earth oven. The communal space shall be visibly transparent.
- Provide a shared laundry area.
- Provide communal gardens where food and flowers can be grown, which is customary in a traditional Samoan *'aiga*.
- Shared garbage and recycling area shall be provided.
- One parking space shall be provided per dwelling unit.

Dwelling Unit

- Strong visual connections between the interior of the dwelling units and the exterior areas of the building shall be provided as both a safety measure and as a social component. Use glazing and other means to open up the walls for maximum visibility.
- Each dwelling unit shall have an individual entry.
- Each dwelling unit shall have a transitional space at the entry that creates a semi-private zone. This design element encourages residents to occupy this space for social purposes, not just for circulation. This will promote interaction amongst neighbors.
- Each dwelling unit shall have 2 – 3 sleeping rooms to accommodate the larger family size typical of Samoan families.

- An open floor plan shall be provided to allow for maximum flexibility in the shared spaces. This creates a social environment within each house that continues the social environment of the entire development.
- A multi-purpose area shall be included in the living area of each unit. This space can be used as an extra sleeping area when hosting guests. This space shall maintain a visual connection with the main living area but be delineated from it to provide a sense of being an individual room.
- Each dwelling unit shall separate the bathroom lavatory from the bathroom and shower facilities. This concept allows for use of the sinks independently from the bathroom enabling more people to be served at one time. This feature is especially beneficial for large families sharing one bathroom.
- A lanai shall be provided in the master bedrooms. This will serve as a connection to the surrounding neighborhood and provide a green space for the tenants. Providing the lanai off the parents' bedroom rather than the children's rooms is also a safety feature.

Proposed Program

The following program was developed utilizing the previous design guidelines. Initial square footages were based on those within the Yorkshire Terrace and Langham Court case studies and have been modified according to the building design. The project consists of a total of 28 dwelling units; half are 2-bedroom units and half are 3-bedroom units. In addition to the residential units, multiple communal areas are provided including a central *malae*, meeting houses, craft areas, children's play areas and gardens.

PROGRAM

Figure 85

SPACE	NUMBER	SIZE (SF)	SUBTOTAL
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RESIDENTIAL UNITS

2 Bedroom Unit	6	842	5,052
	2	907	1,814
	6	1,004	6,024
3 Bedroom Unit	1	1,225	1,225
Sitting Platform / Lana	1	180	180
	2	1,225	2,450
Sitting Platform / Lana	2	125	250
	2	1,342	2,684
Sitting Platform / Lana	2	85	170
	5	1,342	6,710
Sitting Platform / Lana	5	117	585
	1	1,342	1,342
Sitting Platform / Lana	1	146	146
	2	1,365	2,730
Sitting Platform / Lana	2	132	264
	1	1,365	1,365
Sitting Platform / Lana	1	153	153

UNIT SUBTOTAL SF: 33,144

COVERED COMMUNAL AREAS

Chief's Meeting House	1	936	936
Meeting House	3	450	1,350
	1	490	490
	2	750	1,500
Crafts Area	2	200	400
	2	300	600

COVERED COMMUNAL AREA SUBTOTAL SF: 5,276

OPEN AIR COMMUNAL AREAS

Malae	1	2,720	2,720
Children's Play Area	1	488	488
	1	520	520
	1	650	650
Umu	1	170	170
Garden	1	227	227
Roof Garden	1	352	352
	2	393	786
	1	1,376	1,376

OPEN AIR COMMUNAL AREA SUBTOTAL SF: 7,289

SERVICES

Loading / Trash / Recycling	1	1,138	1,138
Mechanical Room	2	185	370
Storage Room	2	220	440
Parking	1	10,208	10,208

SERVICES SUBTOTAL SF: 12,156

TOTAL PROGRAM SF: 57,865

CIRCULATION SF: 12,825

TOTAL SF: 70,690

CIRCULATION %: 18

Based on the program requirements, the appropriate housing type and the information gained from the case studies, the density of the project was identified. The housing type that fits the client needs and Newman's Defensible Space principles provided a start at narrowing down the appropriate density range. The low-rise garden apartment density is between 10 – 80 units per acre. This is a large range, which was further narrowed by considering ideals concerning density and by looking at the number of units in the project program compared to existing projects.

An effort was made in this project to encourage increased density in the urban environment, as is appropriate for the client group, in order to help reduce urban sprawl and the overall impact that the project has on the environment. Given the housing type and the densities of up and coming affordable housing developments in Honolulu, the proposed density for this project is 40 units per acre. This density seems appropriate when comparing it to the Yorkshire Terrace project, which is 35 units per acre. It has a total of 18 two-story units on a half-acre site. The total number of units is slightly less and their sizes are smaller in square footage than this project, however this project will have an additional story to make up for the additional building size. Therefore, the size of the project site should be roughly half an acre.

Knowing the site size enabled the determination of the zoning district by calculating the floor area ratio (FAR), which will be important when selecting a site. FAR is defined as the ratio of floor area to total area of the zoning lot. Multiplying the FAR by the lot area determines the maximum floor area permitted. Excluded from the floor area, which is the area of all floors of a structure, are: parking areas, balconies and other unroofed areas.²⁵² For the Apartment-2 (A-2) District, the calculated FAR for this project is 1.5, which allows a maximum building area of 33,445 square feet on a half-acre site. The floor area of the project equals 28,750 square feet, within the A-2 District range. Once the site selection was completed, the FAR was recalculated for the actual site size, which is 0.64 acres. Therefore, the new FAR is 1.66, allowing a maximum building area of 46,608 square feet for the A-2 District classification.

²⁵² DPP City and County of Honolulu, *Land Use Ordinance*, Sec. 10.

SITE SELECTION

The process of selecting the site for this project included multiple factors of consideration. Analysis of the site context included looking at the demographics, building type, desired density and code requirements of a proposed site.

The first step was to look at the demographics. For this project, an important factor was to locate the housing development in an area that already has a strong Samoan base. This existing support system will enable the success of a new development of this kind. The neighborhood of Kalihi is home to the largest concentration of Samoans in the Hawaiian Islands making it an appropriate area to locate this project.²⁵³ Within this neighborhood, it was best to first review the zoning districts. This review quickly narrowed the possible site options for this project because most of the residential areas in Kalihi are zoned for one- and two-family dwellings with only a few pockets of the required A-2 district, as shown in Figure 87.

Locating Samoan churches in the Kalihi neighborhood further narrowed the search area. Church and church-related activities are a top priority in Samoan households and it is a key support system in their community. Locating a housing development adjacent to a church will further enhance this relationship and broaden the physical boundaries of this built-in Samoan social community.

The next determining factor was to look at the surrounding context of these church locations. It is necessary that the surrounding buildings be of a similar building type to that of the design project. Therefore, they should be low-rise buildings. It is also important that the density of this area be similar to the desired project density, which is 40 units per acre. Selecting a site that is of comparable building type and density will help integrate the new development into the existing neighborhood.

For the purposes of this project, a vacant site was sought as a first choice but not found. Therefore, an appropriate site was selected according to the above criteria and is presumed vacant.

²⁵³ Mayer, 2002 National Foreign Language Resource Center (NFLRC) Summer Institute: Ia Faalautele Lau Gagana – Samoan Pedagogy Institute, (accessed October 27, 2007) 1-2.

Proposed Site

Address: 1122 Banyan Street, Honolulu, HI 96813
TMK: 1-7-031:029
Zoning District: A-2
Site Area: 28,077 sf (0.64 acres)
Owner: City & County of Honolulu
Leasee: Hawai'i Housing Finance and Development Corporation

The proposed site is located in the heart of Kalihi where there is a strong Samoan demographic base. Several possible sites were available within the city block but this particular site seems to have the greatest potential. Figure 89 shows that the site is zoned as an A-2 zoning district; therefore complying with the LUO code, and that it is located directly next to the Samoa-Tokelau Seventh-Day Adventist Church. The proximity to the church will allow a direct social connection, which is important to the Samoan community.

Figure 90 and a review of the parcel zoning information on the City and County of Honolulu's Department of Planning and Permitting website indicate that the surrounding building types are low to mid-rise consisting of single-family dwellings and 4-story multifamily apartments. Just beyond these residential zones are business mixed-use areas. The 2-3 story building type of the new housing development will provide an intermediate height that will provide as a transition between the single-story homes and the 4-story apartment buildings.

The size of the site is larger than what was identified as needed for the program and density requirements. The site is 0.64 acres compared to the required 0.50 acres. This presents an opportunity to adjust the program to include additional dwelling units, which is advantageous to reduce the construction cost per individual unit at the site.

LAND CONTROL CODES

Code Type	Code Description
FLOOD ZONE	FIRM ZONE X
HEIGHT LIMIT	150 FEET
HISTORIC SITE REGISTER NO	
LOT RESTRICTIONS	NONE
SMA/SHORELINE	NOT IN SMA
SPECIAL DISTRICT	NOT IN SPECIAL DISTRICT
STATE LAND USE	URBAN DISTRICT
STREET SETBACK	YES--SEE DTS MAP PUC-9. VERIFY WITH TRB 768-8083
ZONING (LUO)	A-2 MEDIUM DENSITY APARTMENT

Figure 86: Land Control Codes

<http://dppweb.honolulu.gov/DPPWeb/default.asp?PossePresentation=TaxMapKeyInfo&PosseObjectId=56903>
(accessed December 23, 2007).

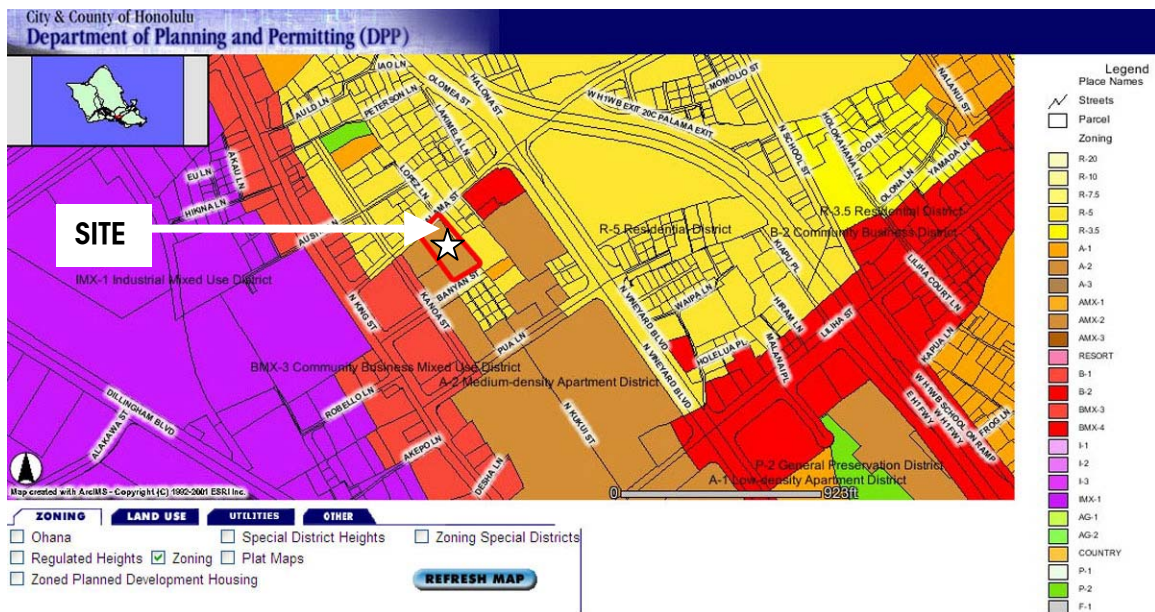


Figure 87: Kalihi - Partial Zoning Map
<http://gis.hicentral.com/website/parcelzoning/viewer.htm> (accessed December 23, 2007).

Figure 88: Samoa-Tokelau Seventh Day Adventist Church
http://hwic.netadventist.org/index.php?option=com_na_content&task=view&id=7&showico=1&Itemid=27 (accessed December 23, 2007).

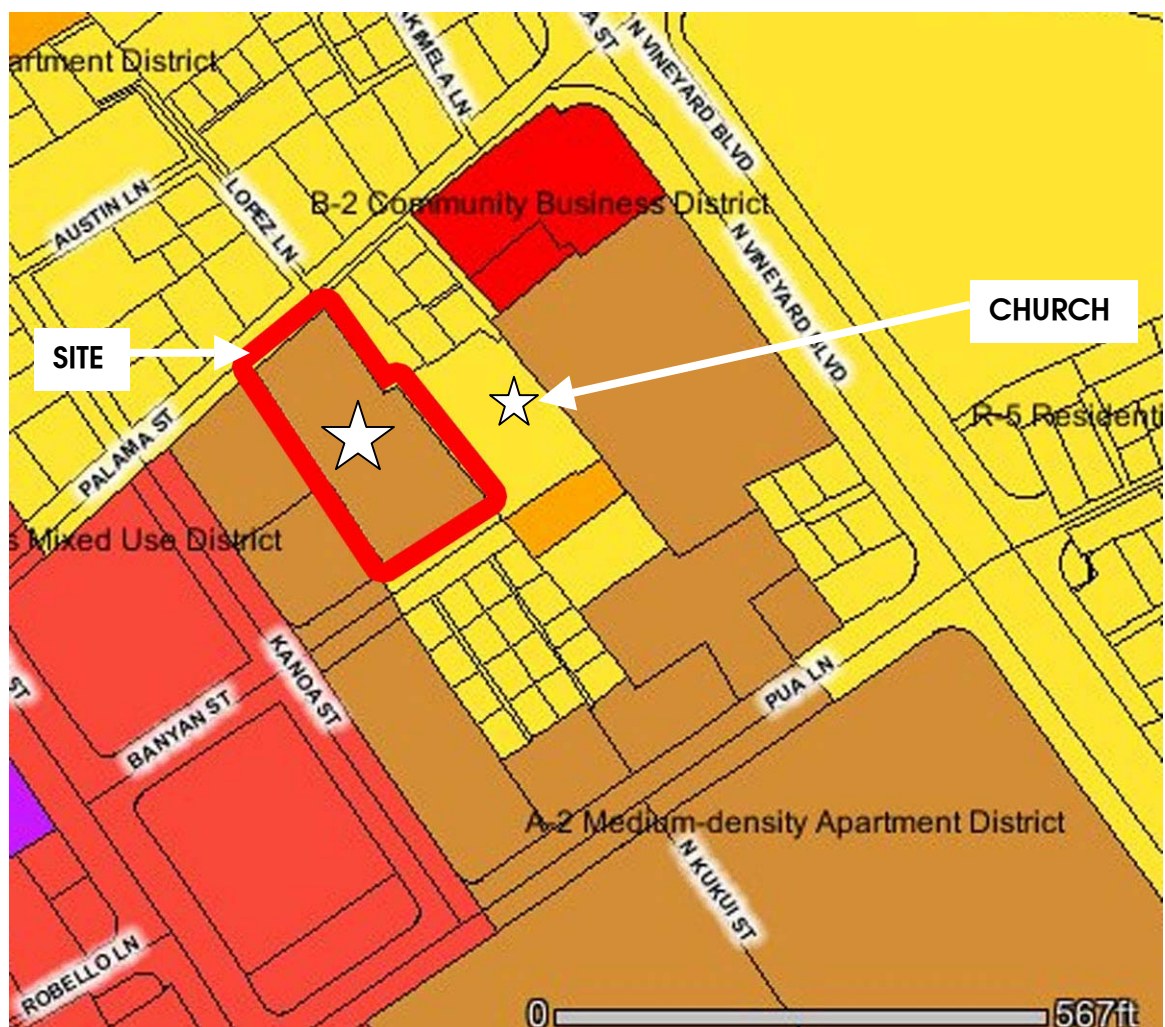


Figure 89: Kalihi – Proposed Site Zoning Map
<http://gis.hicentral.com/website/parcelzoning/viewer.htm> (accessed December 23, 2007).



Figure 90: Kalihi – Aerial View of Site
Google Earth (accessed December 23, 2007).

9 DESIGN PROJECT

DESIGN PROCESS

The design process utilized considers the building program and the site independent from one another initially. The programmatic relationships are identified while simultaneously the site is analyzed to determine the most appropriate building form in relationship to its surroundings. After these steps, the program and building form are synthesized and developed into a building design that is pragmatic in both its function and form.

PROGRAM CONCEPT

The program concept is derived from a traditional Samoan village and promotes the idea of communal living. The diagram of this concept is a cocentric layout featuring a central outdoor communal area, similar to a village *malae*, for all of the residents use. In addition to everyday use, this area is large enough to host family gatherings and cultural events. In between the communal area and the outer ring of residential units are transitional spaces. These areas are a combination of covered and uncovered areas that serve as an extension of the residential unit for daily activities. The overall cocentric arrangement visually connects all of the program spaces allowing for social control and collaboration that occurs in a traditional Samoan village. Visual connection is also important for providing a secure environment by allowing all areas of the development to be monitored at any time by anyone from within.

SITE ANALYSIS & CONCEPT

The site is located within a primarily residential area in the Kalihi neighborhood, which is just northwest of downtown Honolulu. The front of the site faces Palama Street, a secondary roadway that provides access to the primary roadways of North King Street and North Vineyard Boulevard. The rear of the site faces Banyan Street, which is a short dead-end road allowing access to the residences along it and the Samoa-Tokelau Seventh-Day Adventist Church at its end. At the southwest end of Banyan Street is a pedestrian walkway between two other neighborhood churches.

Determining the form of the proposed building began with looking at the heights of the surrounding buildings. Most of these buildings are 1- or 2-story single-family residences with a few multifamily units at three and four-stories. The proposed building height is a combination of two and three stories providing a transition between the varying heights of the adjacent buildings. A 3-story rectangular volume will run the long length of the site adjacent to the neighboring 4-story multifamily residential buildings. The volume facing Palama Street is also 3-story to define an urban street edge that is appropriate for this busy street. The volume facing Banyan Street is 2-stories in response to the single-family 1-story residences across the street. The northeast central portion of the site is an open space to provide relief to the site and allows the upper floors to take advantage of mountain views. The open area also provides a connection between the new development and the neighboring Samoa-Tokelau church. Church is a daily activity in Samoans lives and it is important to provide a strong and deliberate connection to the adjacent church. The open area also presents the opportunity to incorporate green spaces into the development. The surrounding neighborhood is extremely dense and offers few parks. Bringing greenery into the development will help create an oasis feeling within the crowded urban environment.

Proposed vehicle access to the site is from Banyan Street and exits onto Palama Street. One-way access is appropriate for this site to relieve existing congestion that occurs when vehicles attempt to enter the site from Palama Street. Pedestrian access is provided directly from both Palama and Banyan streets as well as from the northeast side of the site providing a link to the Samoa-Tokelau church. In addition, a pedestrian walkway is proposed along the northwest side directly connecting the residences along Palama Street to the church.

SYNTHESIS

Public to private progression plays an important role in bringing together the program and site concepts. The privacy diagram shows that the site is surrounded by public walkways but the progression from public to private within the site starts at the center of the building, the communal courtyard. Within the development, this space encourages social interaction and is visible from all the residential units making it the most public space within the building. This courtyard is not open to the general public, but can be opened on the northwest façade for special functions in conjunction with the

neighboring church. The next level of privacy is the transitional space between the central court and the residences. This area serves as circulation space but is also equally used as activity areas for the residents. The units continue the progression with semi-private areas at the front of the unit and private areas in the back. These private areas face the streets and the neighboring residential buildings. In an urban environment it is important to provide a connection between the street and the building. In this design, small lanais are incorporated into the facades to provide a transition between the street and the building. In addition, landscaping is used to soften the building edge.

The privacy diagram informed the development of the individual residential unit floor plans and facades. Transparency into and from the units is critical to provide an uninterrupted connection between the units and the communal areas. Transparency allows visibility, which is vital to Samoan's way of social control. Therefore, the units are divided into the semi-private and private areas. The semi-private area faces the courtyard and functions as the living area of the unit where the residents would spend most of their time when they are inside the unit. The other half of the unit is considered private and is the location of the bedrooms. The services of the unit, including the kitchen and bath facilities, are conveniently located in the middle of the units.

BUILDING DESIGN

The building is a collection of three main rectangular volumes housing the 28 residential units along with three smaller rectangular volumes featuring the entries to the building and loading area. These volumes collectively form a three-sided courtyard that organizes the circulation of the building. The use of a 2-story vertical garden wall encloses the courtyard and also provides a vertical connection between the different floors of the development. Within the courtyard are three pavilion structures that provide open-air communal gathering spaces. These pavilions connect to the long central volume on the second and third levels by the exterior balcony walkways.

From Palama and Banyan streets, the building's narrowest façades facing northwest and southeast respectively are in view. The rock wall base highlights that the building is elevated from the street level by five feet. This elevation is a symbolic element in the design but also a safety feature. Elevating the building makes possible a secured parking garage that is partially underground, an amenity required in a mixed-income

residential building located in an impoverished neighborhood. It also provides additional privacy and protection to the residential units on the first floor of the building. It prevents a direct view into the apartments and the additional height deters potential break-ins. Symbolically, the raised building is representative of traditional Samoan housing where the houses are elevated to different heights based on their social status. The chiefs have the highest platforms.

These street façades also feature two of the three secured entries into the building. In a crime-ridden neighborhood, limiting the entries rather than providing individual unit entries offers another layer of protection against possible crime. As mentioned previously, exterior lanais and landscaping provide a connection between the street and the building. The landscaping utilized is bamboo and other dense plant materials that will deter people from occupying these areas directly adjacent to the building that may be hidden from public view.

The facades also suggest a cultural reference to Samoan woven mats, which have many functions in Samoan culture. One function is their use in traditional Samoan houses to protect the interior of the wall-less house from the elements as needed. The mats are connected at the roof of the house and roll or fold down to provide protection. In the façade design, varying length vertical bands of horizontal wood panels represent the woven mats. This addition to the façade references an important cultural element while providing visual interest in a unique way. The long southwest façade features this element as well as the exterior lanais. Bamboo provides a soft buffer between the building and the adjacent buildings' parking lots. Lastly, the roof above the units is a shed roof that provides the optimum angle for photovoltaic panels that will meet a portion of the complex's energy needs.

The northeast façade features a vertical garden wall and bamboo bordering the pedestrian path that leads to a terraced gathering space. The terraced area connects to the elevated building entry and faces the Samoa-Tokelau church. The terraces are grass covered with a traversing ramp leading up to the small plaza that serves as the lanai of the entire residential development. A series of pivoting doors can be opened to connect the lanai with the interior courtyard. In addition to a gathering area, the lanai

serves as a play area for children and will particularly be utilized surrounding services and events held at the adjacent church.

Inside the building, the central courtyard is divided into covered and uncovered areas. At the heart of the site is the Chiefs Meeting House, a covered area that represents a traditional round meeting house and can be utilized for functions that involve the entire complex. This space features the perimeter structural posts that are significant culturally as each post is assigned to a particular person based on social rank. At every meeting, each person always sits with his back to his assigned post. The structure used throughout the building is designed in response to a traditional Samoan house. The posts are round exposed steel columns and are representative of the tree trunks used to support traditional houses. These posts support exposed steel girders and beams. The structural material was chosen because it is a recycled material and has great strength that can easily support the multifamily complex. The structure is left exposed as it is in traditional Samoan houses and the placement of the columns delineates the transitional space from the open courtyard. Within each of the units, a single column represents the central support column found in a Samoan round house.

Also within the courtyard is a traditional outdoor cooking pit, a children's play area shaded by flowering vines and a floor pattern with cultural significance. The outdoor cooking pit allows the residents to cook food in a way that they are familiar with for special occasions or for daily use. The centralized play area is visible from the units allowing for a safe play environment and reinforces the Samoan practice of the community working together to raise the children. The location also places the children in the midst of the daily activities of the residents thereby exposing them to the appropriate social behavior expected of them and others. The stone floor pattern is designed as an abstraction of the kava bowl, a symbol of hospitality in Samoan culture. The kava bowl is used ceremoniously to drink kava before every gathering. Samoans are constantly welcoming family and friends into their homes and the floor pattern is symbolic of their hospitality. The center of the bowl is the Chiefs Meeting House and the six feet of the bowl extend out highlighting the connection between the residential units of the complex and the neighboring Samoa-Tokelau church.

Two smaller meeting houses are located to either side of the central court and provide a place for the daily activities of communal living including cooking areas and laundry facilities. In between these pavilion meeting houses and the residential units are smaller, more intimate courts that provide additional communal living areas and a garden. Within the courts are sitting platforms that are elevated 18 inches above the finish floor and are connected to the residential units. Traditionally in Samoa, many activities take place on the floor in a seated position including learning, weaving, lei making and meetings. The sitting platforms provide a place for these and other floor activities. These areas resemble traditional housing floors by being elevated, covered and open-air.

The location of the sitting platforms within the transition space allows this area to serve dual purposes. This space functions as circulation and as occupiable space. Contrary to Newman's ideal of minimizing corridors; this design expands the corridors into living spaces. Both ideas have the same intent of creating a safer environment. This aim is achieved through the expanded transitional area that is a covered exterior extension of the house where daily activities can be performed. Allowing for activities to take place within these zones allows for continual use of these areas and constant observation of the circulation throughout the building. In addition to enhanced security, an ambiguity between the indoor and outdoor space is essentially created and this effect is desired for two reasons. First, it mimics the feeling of traditional Samoan houses that have roofs but no walls. Second, an interior/exterior relationship in building design is representative of courtyard design in Hawai'i. Hawaii's climate is perfectly suited for indoor/outdoor living and Hawaii's courtyard design exemplifies this lifestyle.

The façade of the units facing the transitional space further enhances the indoor/outdoor connection through the use of transparent materials and operable windows and louvers give the wall permeability. Oversized double-hung windows open up the space above the sitting platforms, which extend into the housing unit as window seats. Glass doors provide centralized entries into the units and large wood louvers pivot open to provide horizontal work surfaces on both the inside and outside of the units.

Connecting all of the floors is a glass elevator and an open staircase in the center of the development. The staircase wraps the Chiefs Meeting House to create a prominent procession to the upper floors that is highly visible to the surrounding development. The

upper floors generally repeat the layout of the first floor with the exception of the meeting house locations. Roof gardens are incorporated to provide direct access to open green spaces at every level. The gardens are also a food and flower source for the residents as garden cultivation is a fundamental element to the traditional Samoan lifestyle.

The upper levels also feature sitting platforms for craft activities. In addition to those connected to the units, additional platforms are located adjacent to the staircases stemming from the street entries. Providing an activity area next to these corner stairs is important in the social control of these vertical pathways that are hidden from the view of the development. Similar to the exterior unit circulation, these platforms make this circulation area an occupied space and behavior within it will be monitored as it is within the rest of the complex.

RESIDENTIAL UNIT DESIGN

The building design resulted in 28 residential units, half of which are two-bedroom units and the others are three-bedroom units ranging in size from approximately 840 square feet to 1,365 square feet. The design allowed for a slight increase in the density of the site from the projected 40 units per acre to 44 units per acre. This was a result in adjusting the proposed program that called for 3- and 4-bedroom units due to larger family sizes. This proposal was based on the assumption that extended families live together. Traditionally, they do live together but in a household arrangement of several small houses, each housing a nuclear family. Providing a combination of 2- and 3-bedroom units allows for a similar extended family living environment while reducing the required square footage per unit.

The entry to a typical unit is a glass door approximately centered on the unit's façade. Within the unit the social activities take place at the front where the transparent façade allows visibility into the house from the courtyard. These spaces include the living and dining areas. Dividing this social area from the private bedrooms at the rear of the unit is the service core that includes the kitchen and bathroom and, in the larger units, a multi-purpose space. The multi-purpose area is truly multi-purpose. It is a sleeping area for visiting guests, which is a frequent need for Samoan families, it is a study where the children can complete schoolwork or it is a home office for a parent. Another feature of

the unit floor plan is the provision of the bathroom sink separate from the bathroom. This arrangement is ideal for larger families that must share a single bathroom facility as it allows use of the sink while the bathroom is occupied.

The floor plan is arranged in an open layout to create a unified social environment within each unit. A wood slatted partition provides a physical separation between the living area and the multi-purpose space but is not a visual barrier to the activities taking place. Likewise, the modular closet system that divides the bedrooms and the living areas provides a physical barrier but has sliding doors that open to provide a visual connection throughout the floor plan. The exterior windows are located within this visual line of circulation to promote an open feeling and connection to the outdoors.

CONSTRUCTION COST ESTIMATE

Figure 91

Item	Description	Unit Multiplier	Cost / Unit *	Subtotal
Site Development	General Grading, Soils Engineering, Surveyor Fees, HAZMAT, Foundation	0.64 acres	\$540,000	\$345,600
Structural System	Poured in Place Concrete & Structural Steel	70,690 sf	\$103	\$7,281,070
Architectural Finishes	Doors, Windows, Walls, Ceilings, Floors, Fixtures and Partitions	70,690 sf	\$108	\$7,634,520
Electrical	Power, Lighting, Telecommunication Systems	70,690 sf	\$30	\$2,120,700
Plumbing	Water and Sewage Lines	70,690 sf	\$9	\$636,210
HVAC & Mechanical Systems	Ventilation (no a.c.)	70,690 sf	\$16	\$1,131,040
Fire Protection & Life Safety	Alarms and Signage	70,690 sf	\$9	\$636,210
Landscape	Mature Trees	7 trees	\$3,500	\$24,500

SUBTOTAL: \$19,809,850

Contingency in SD phase	Emergency & Unexpected Conditions	15% of Subtotal	\$2,971,478
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TOTAL: \$22,781,328

TOTAL COST PER SF: \$322

TOTAL COST PER UNIT: \$813,619

* Cost per unit provided by a Honolulu construction cost estimator and increased to reflect the 8% construction cost increase as presented by the University of Hawai'i Economic Research Organization (UHRO).

Bonham, Carl, Paul Brewbaker and Byron Gangnes, "UHRO Annual Hawai'i Construction Forecast: Despite Concerns, Soft Landing Expected (Honolulu: University of Hawai'i Economic Research Organization (UHRO, 2007), <http://www.uhero.hawaii.edu> (accessed March 25, 2008).

IBC CODE REVIEW

Figure 92

Requirement	Provision
OCCUPANCY	
Multifamily apartment classified as Residential Group	R-2 Occupancy
BUILDING HEIGHT AND AREA	
Type III Non-rated allows 4 stories & 16,000 sf per floor	4 stories & less than 16,000 sf per floor
MEANS OF EGRESS	
2 exits for 11-500 occupants	2 egress exits
75 feet maximum length for common path-of-egress	57 feet maximum
300 feet maximum exit-access travel distance for exterior egress balcony	177 feet maximum
1 hour rated exit-access corridor	Protected steel
10 feet minimum separation between exit-discharge components and adjacent property lines	16 feet minimum

LUO CODE REVIEW

Figure 93

Requirement	Provision
DEVELOPMENT STANDARD	
Multifamily dwelling classified as Apartment District	A-2 medium-density apartment
10,000 sf minimum lot area	28,077 sf (0.64 acres)
70 feet minimum lot width and depth	98 feet minimum
10 feet minimum front, side and rear yards	10 feet minimum
40 feet maximum height	40 feet maximum
2 parking stalls for dwellings 800 sf and over	1 stall per unit
1 guest parking stall per 10 units	1 ADA stall
1 loading space for 20 - 150 units	1 loading space



COMMUNAL WAY OF LIFE



SECURITY



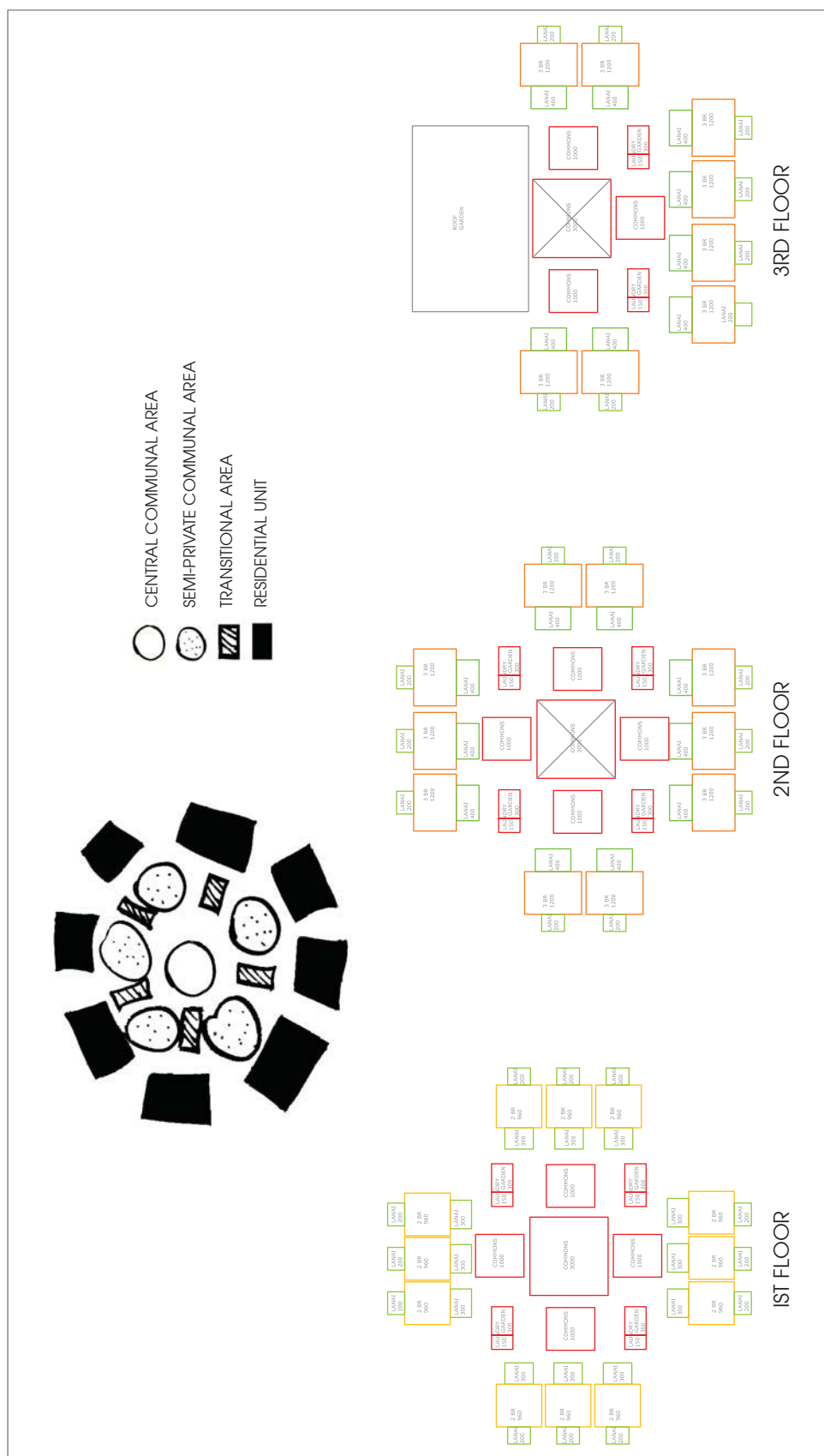
TRANSPARENCY



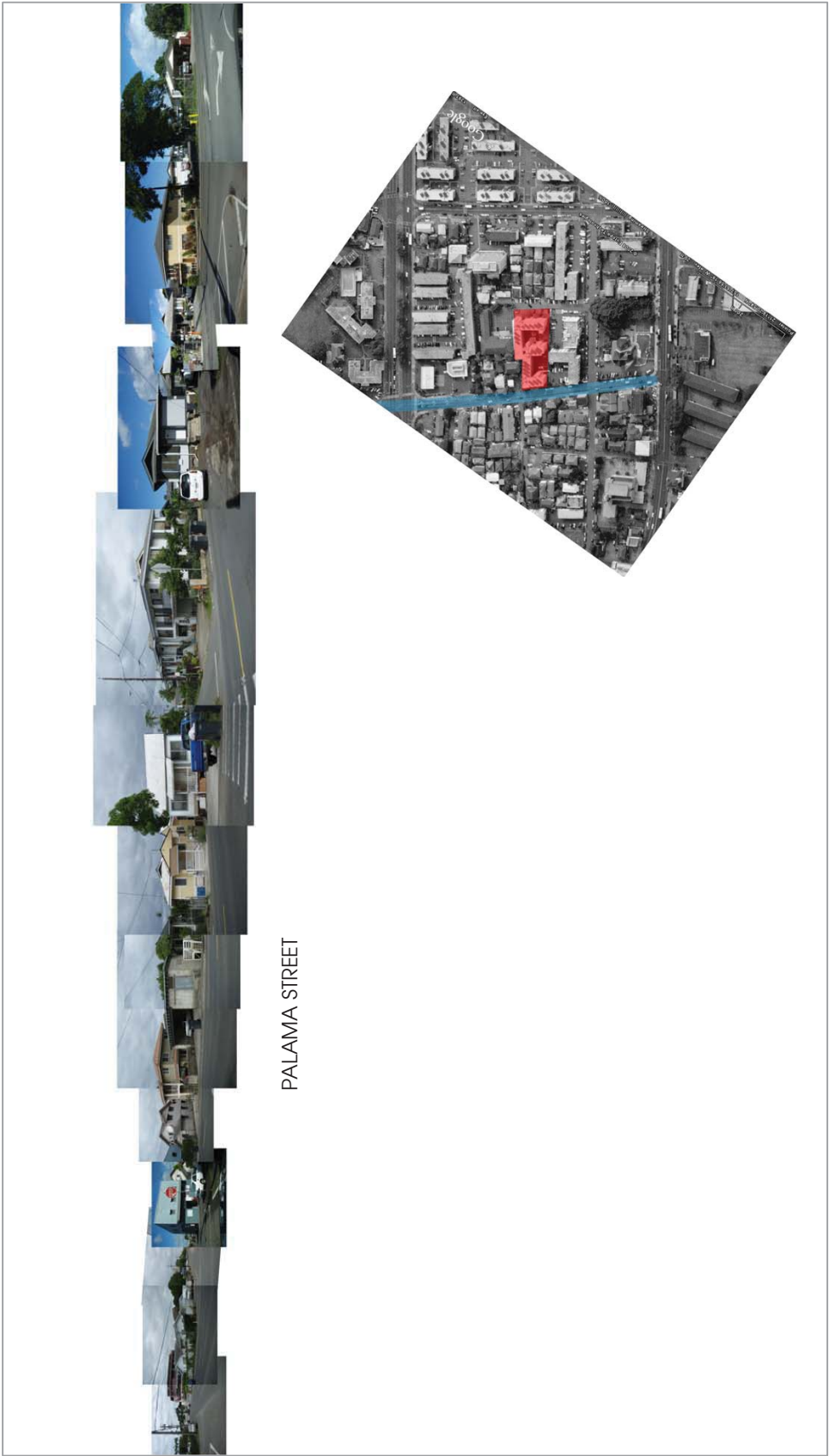
DESIGN INSPIRATION

Figures
 94 - 100: Traditional Samoan life
 suffer, Samoa: A Photographic Essay, 1971
 101 - 2: Pruitt-Igoe in St. Louis
<http://www.densiblespace.com/book/illustrations.htm>
 103: Landscape
 House & Garden Jan 2005, Photo by Marion Brenner
 104: Burton House
 Architectural Record Residential Quarterly July 2005,
 Photo by Paul Rivera
 105: Moriyama Residence
 Dwell Dec/Jan 2007, Photo by Dean Kaufman

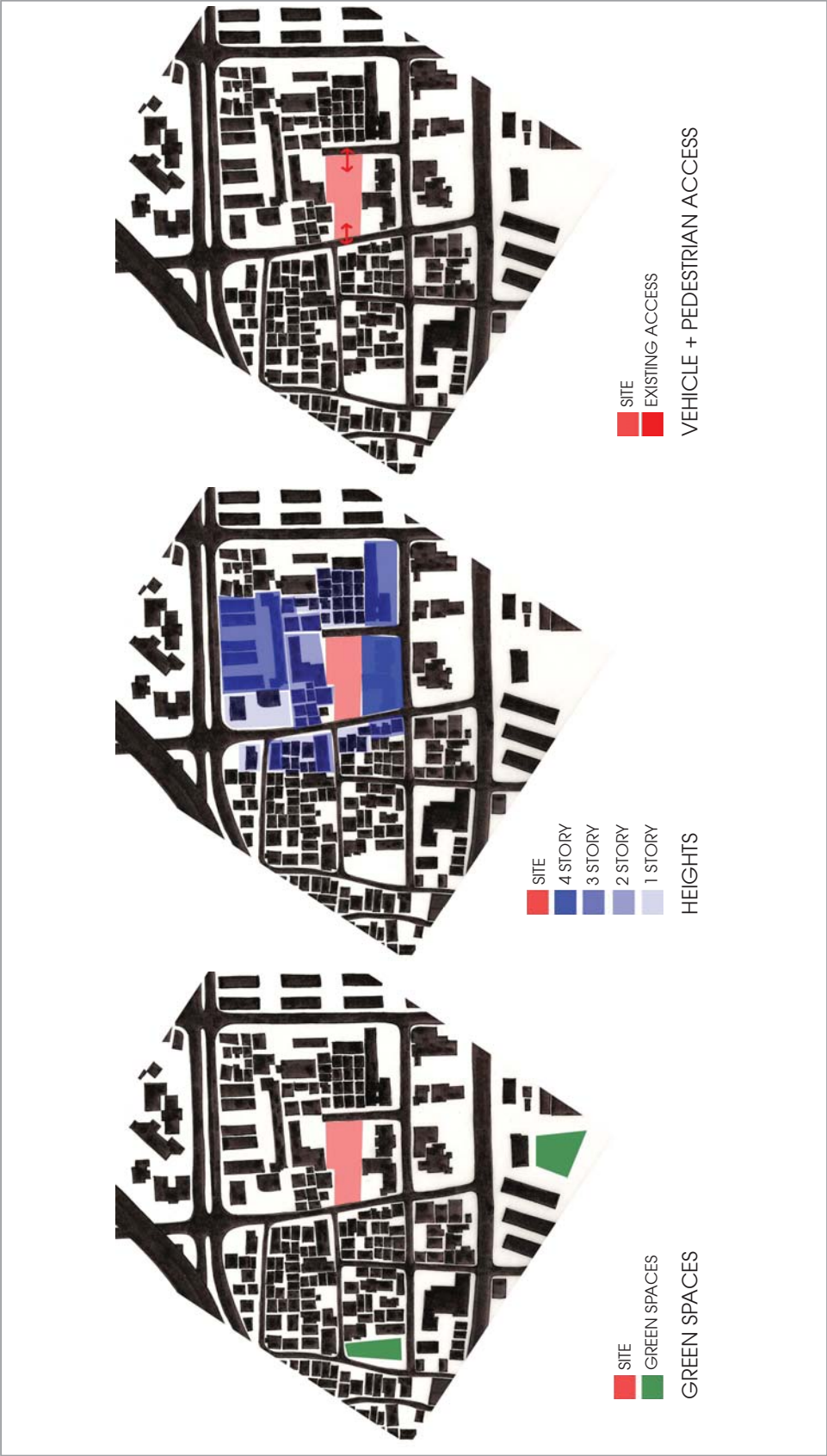
106: Halley Pavilion
 Architectural Record Residential
 Quarterly Jan 2007, Photo by
 Lake/Flato Architects
 107: The Coconut House
 lee+mundwiler architects, Photo
 by Julius Shulman & Juergen
 Nagai



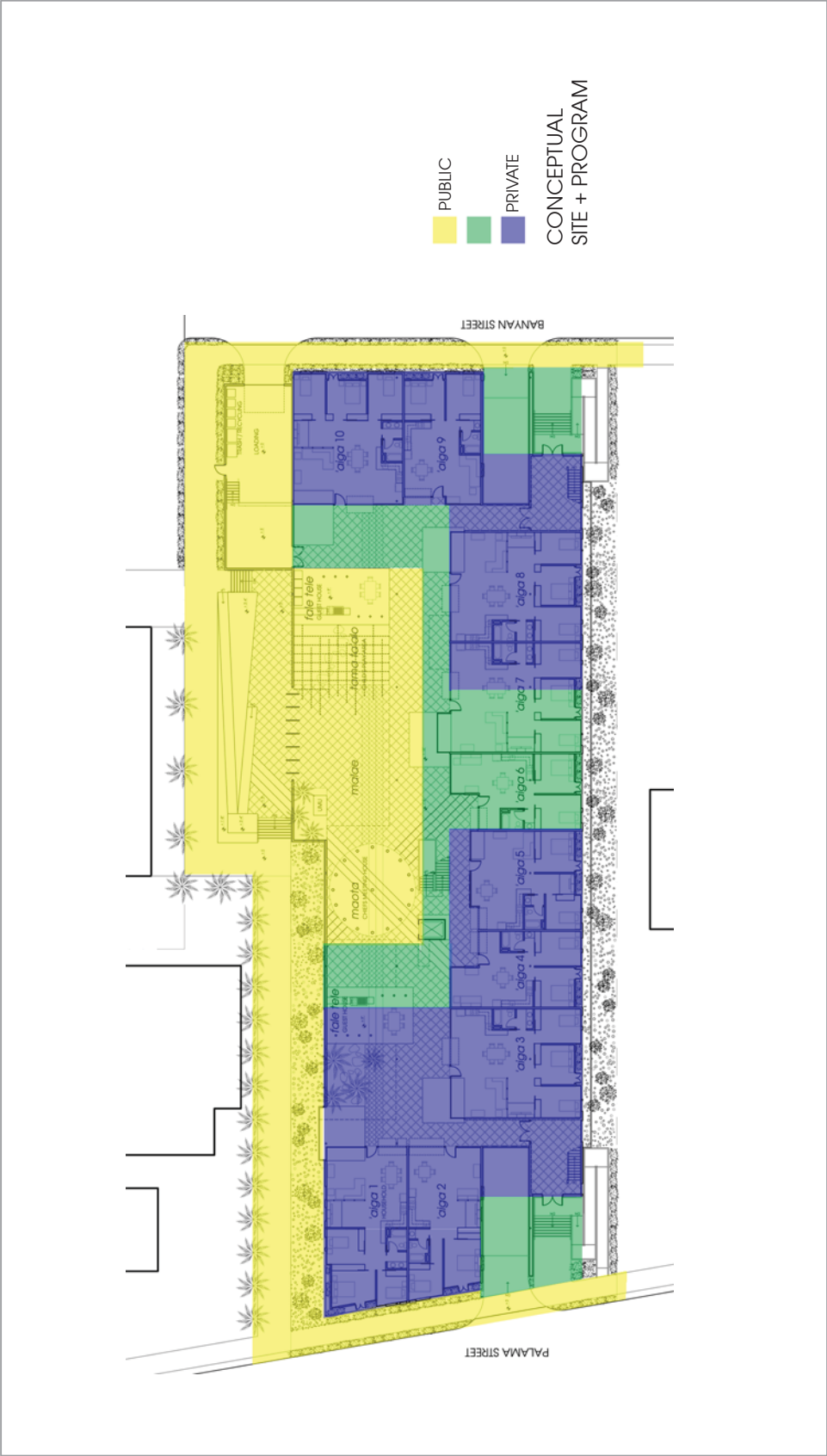
PROGRAM CONCEPT

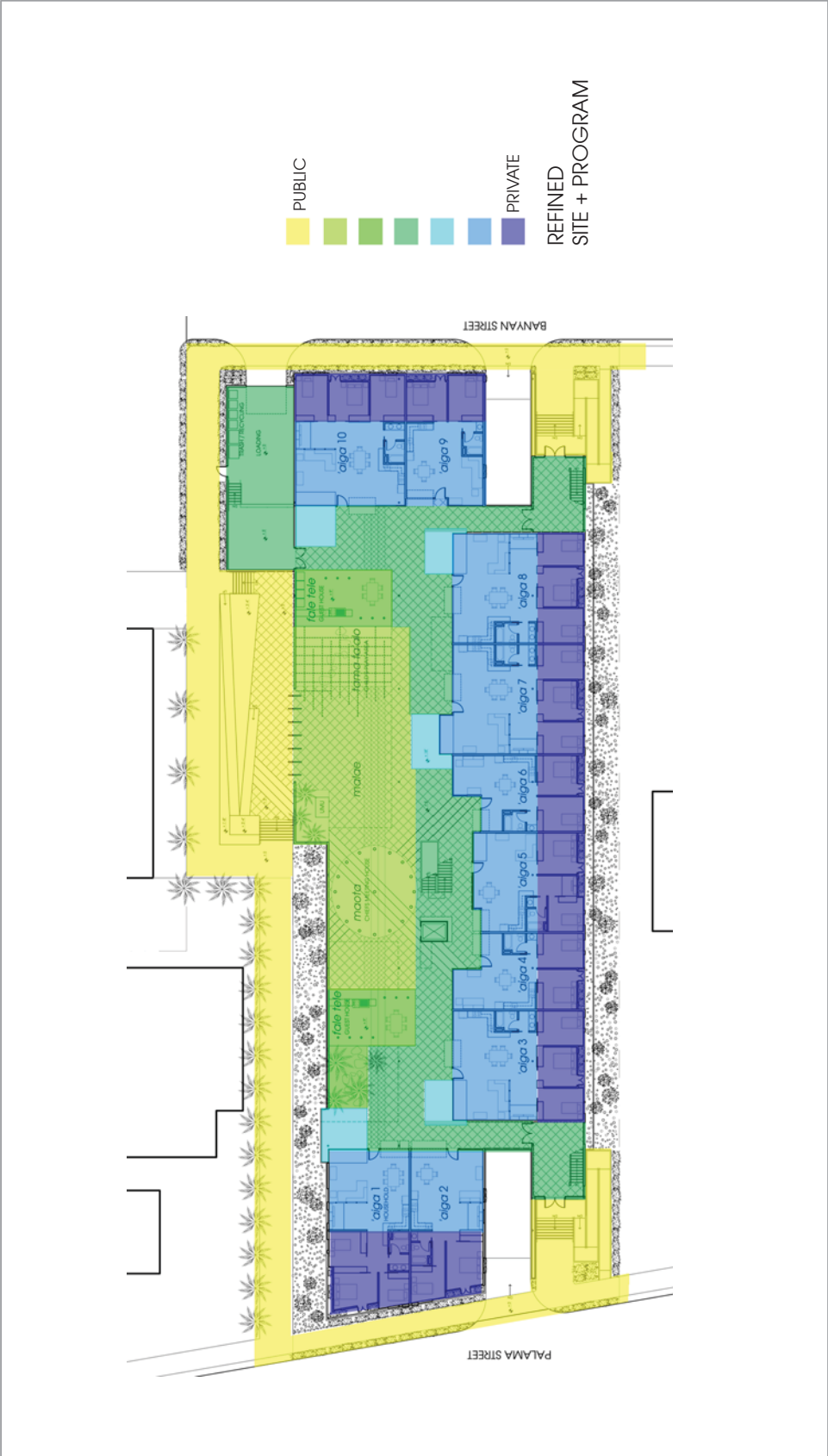


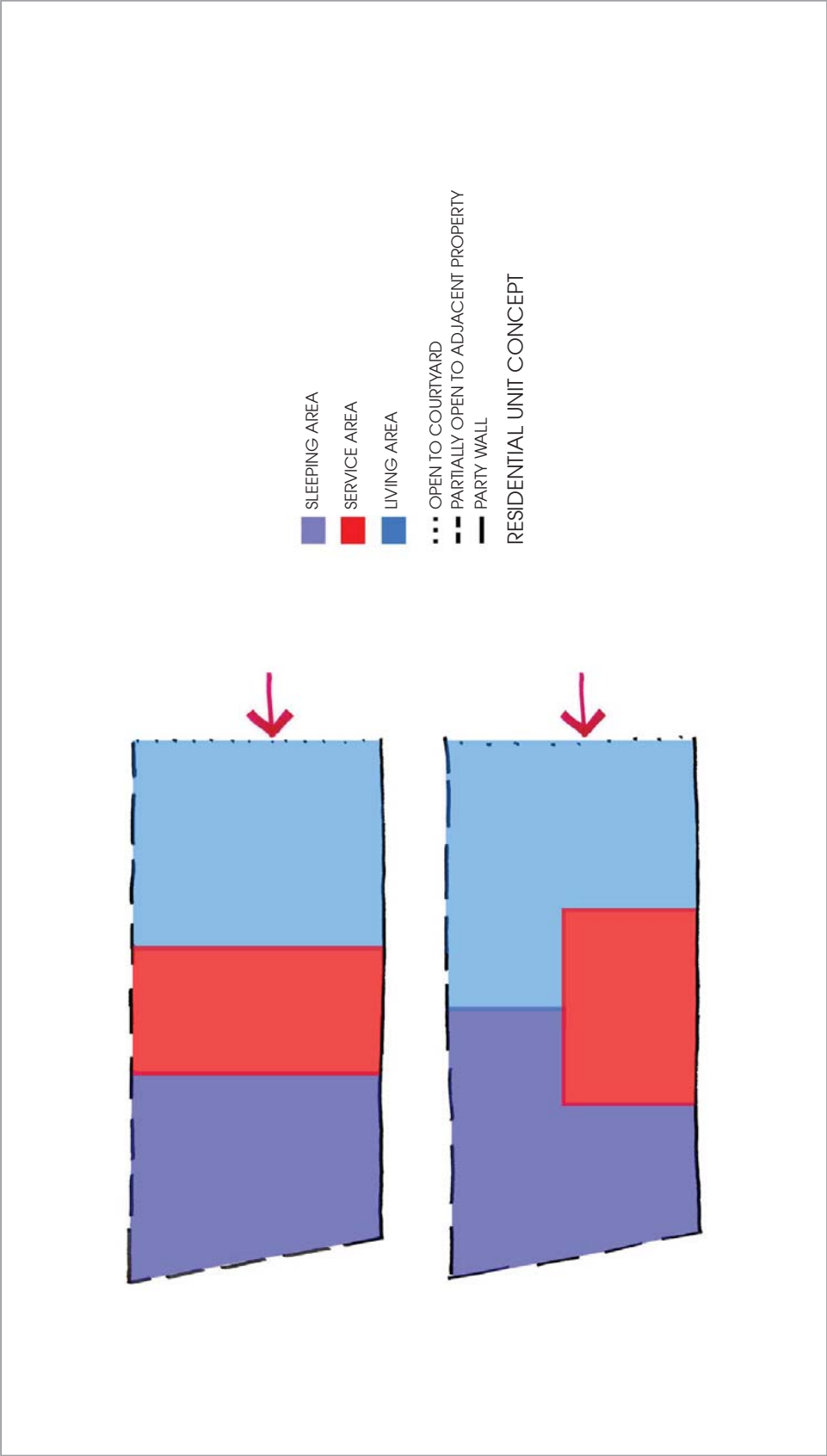


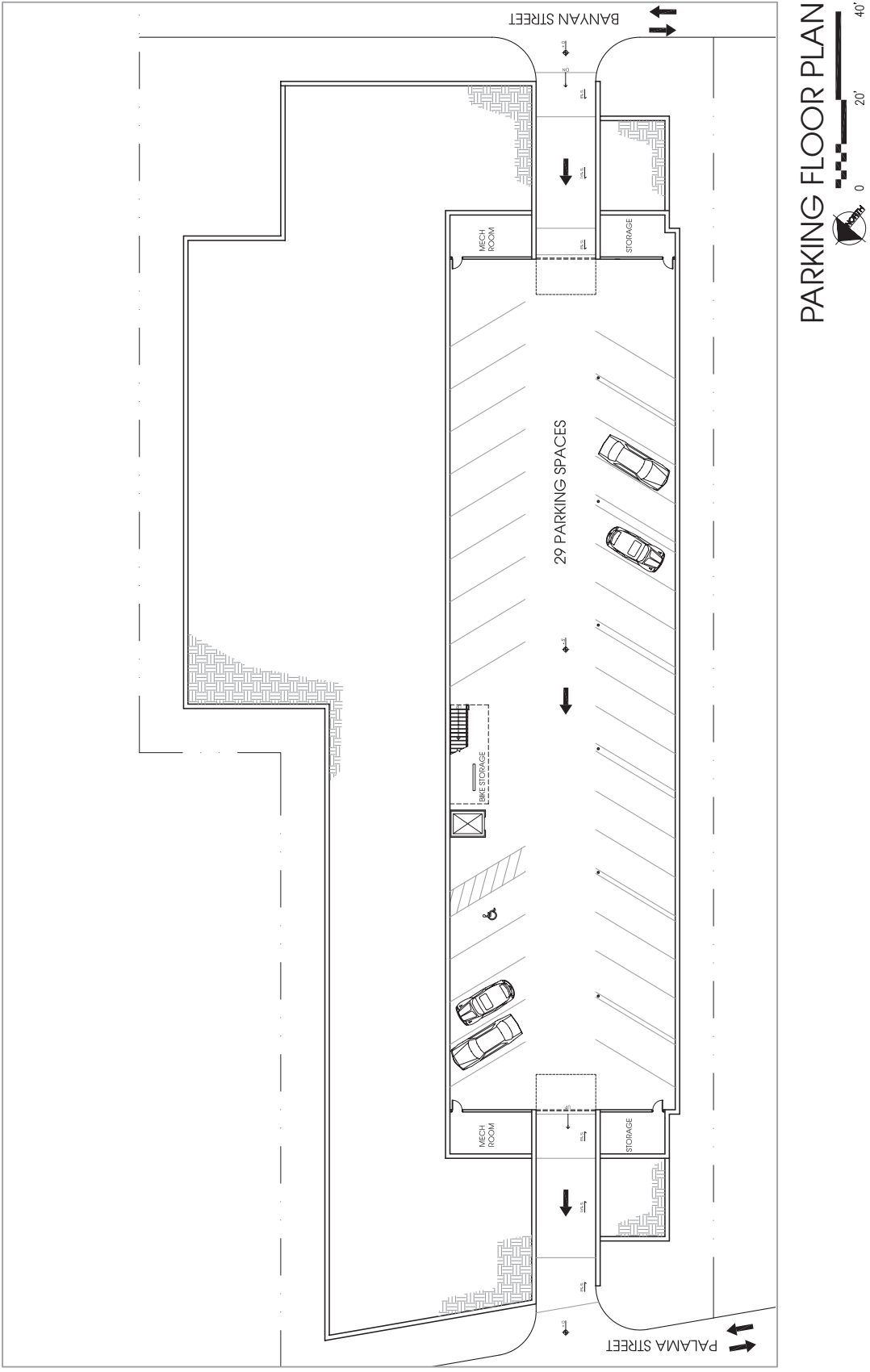




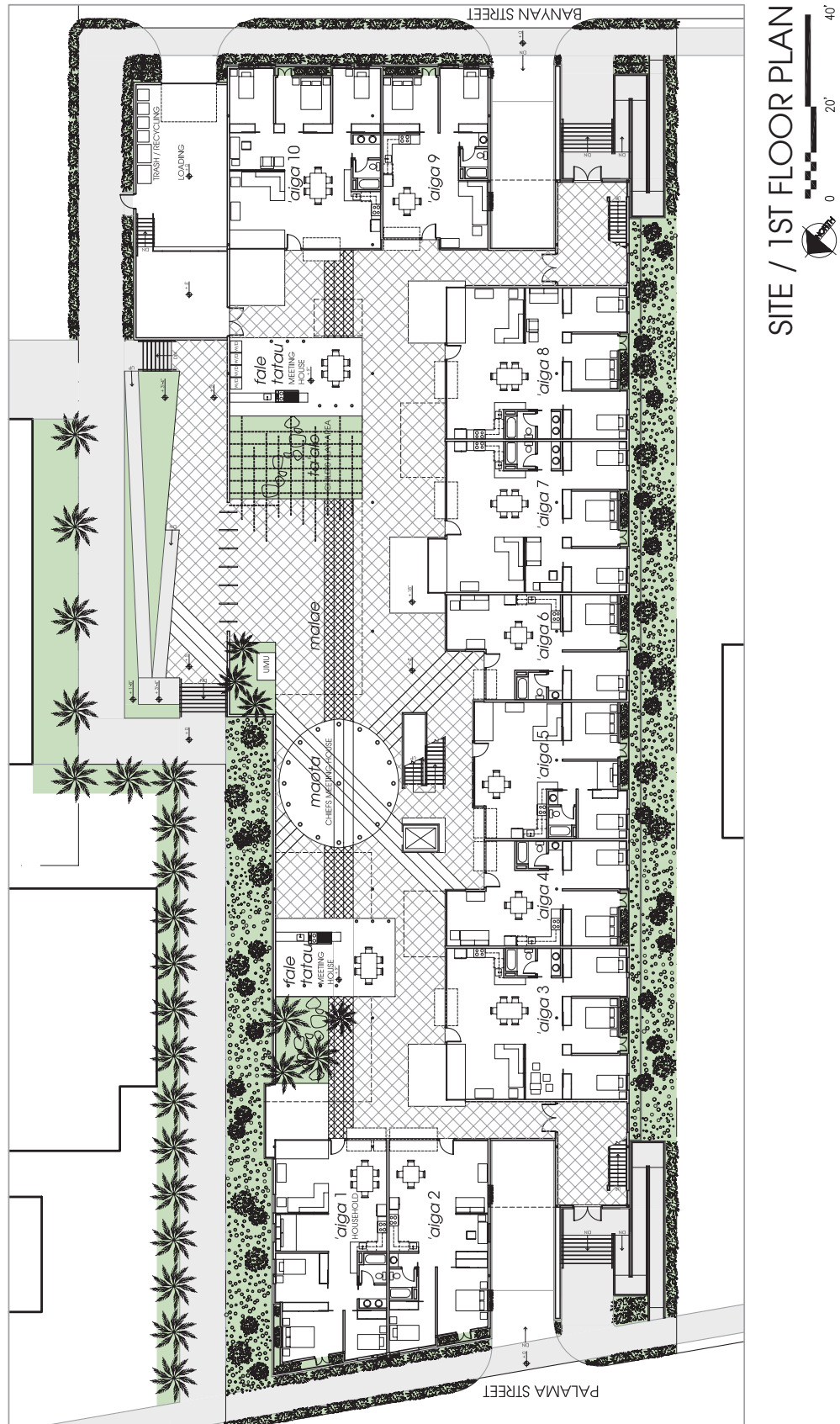






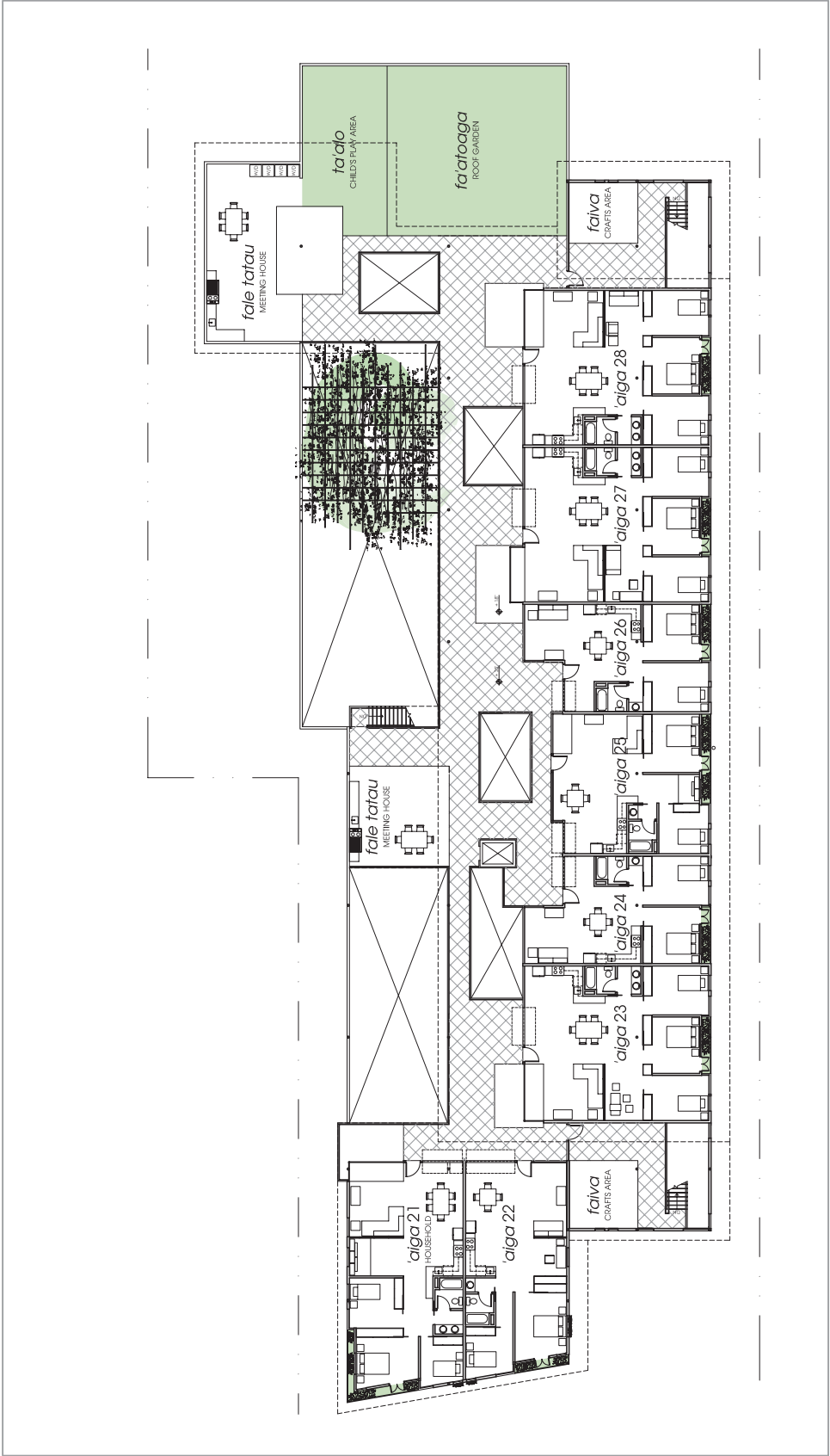


PARKING FLOOR PLAN





2ND FLOOR PLAN



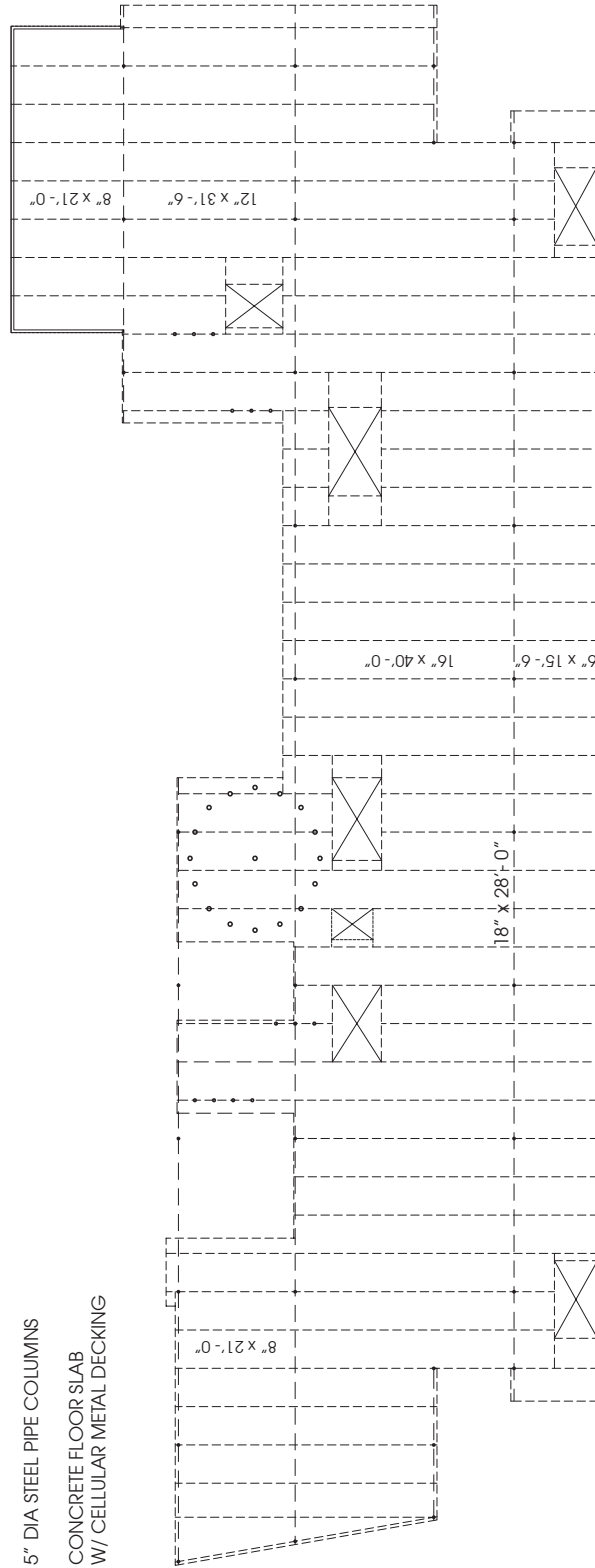
3RD FLOOR PLAN

STRUCTURAL SYSTEM

ONE-WAY STEEL BEAM SYSTEM
LONGEST SPAN 28' X 40'

5" DIA STEEL PIPE COLUMNS

CONCRETE FLOOR SLAB
W/ CELLULAR METAL DECKING

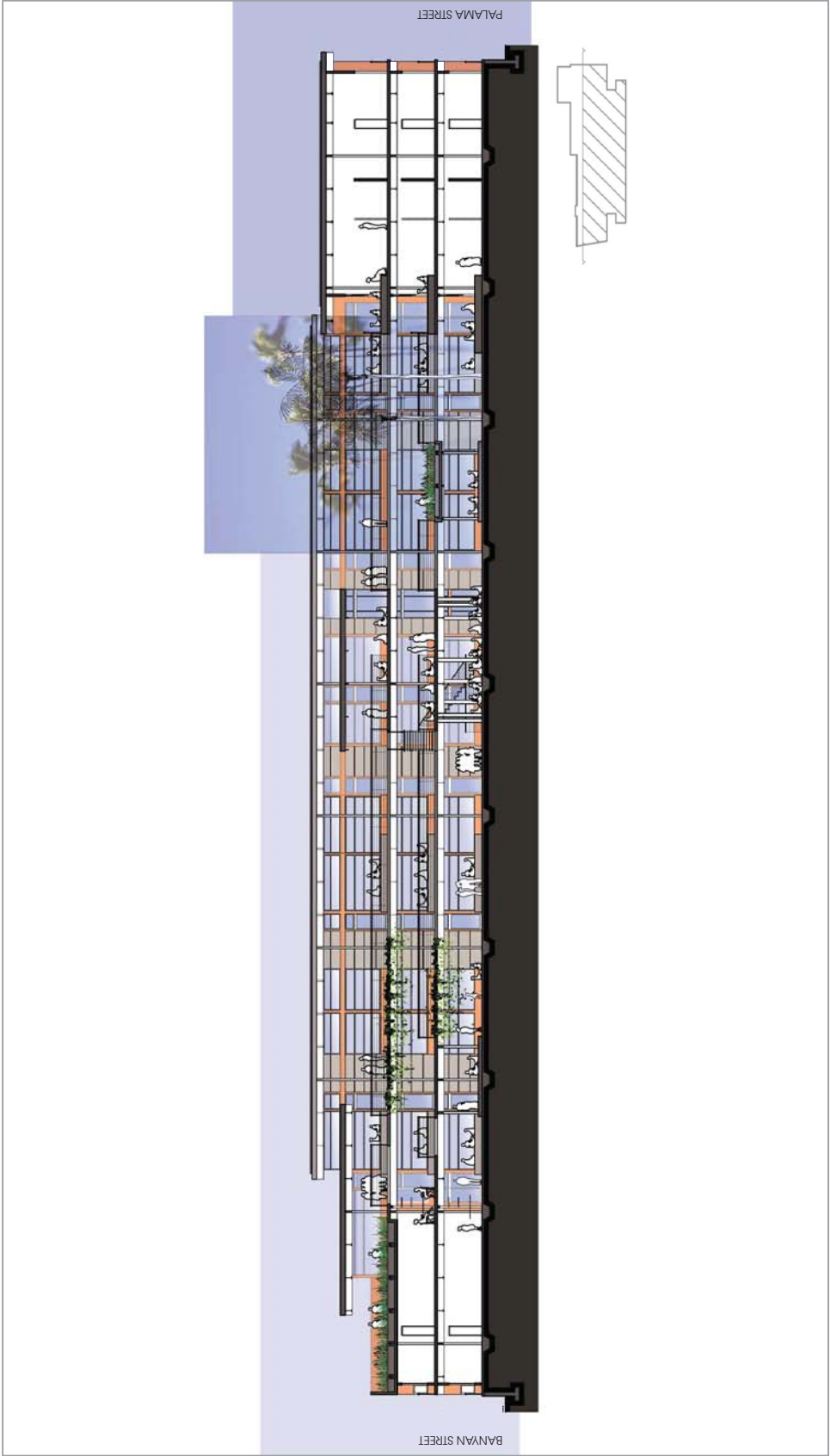


STRUCTURAL PLAN





FRONT ELEVATION





SECTION / ELEVATION

0 20' 40'

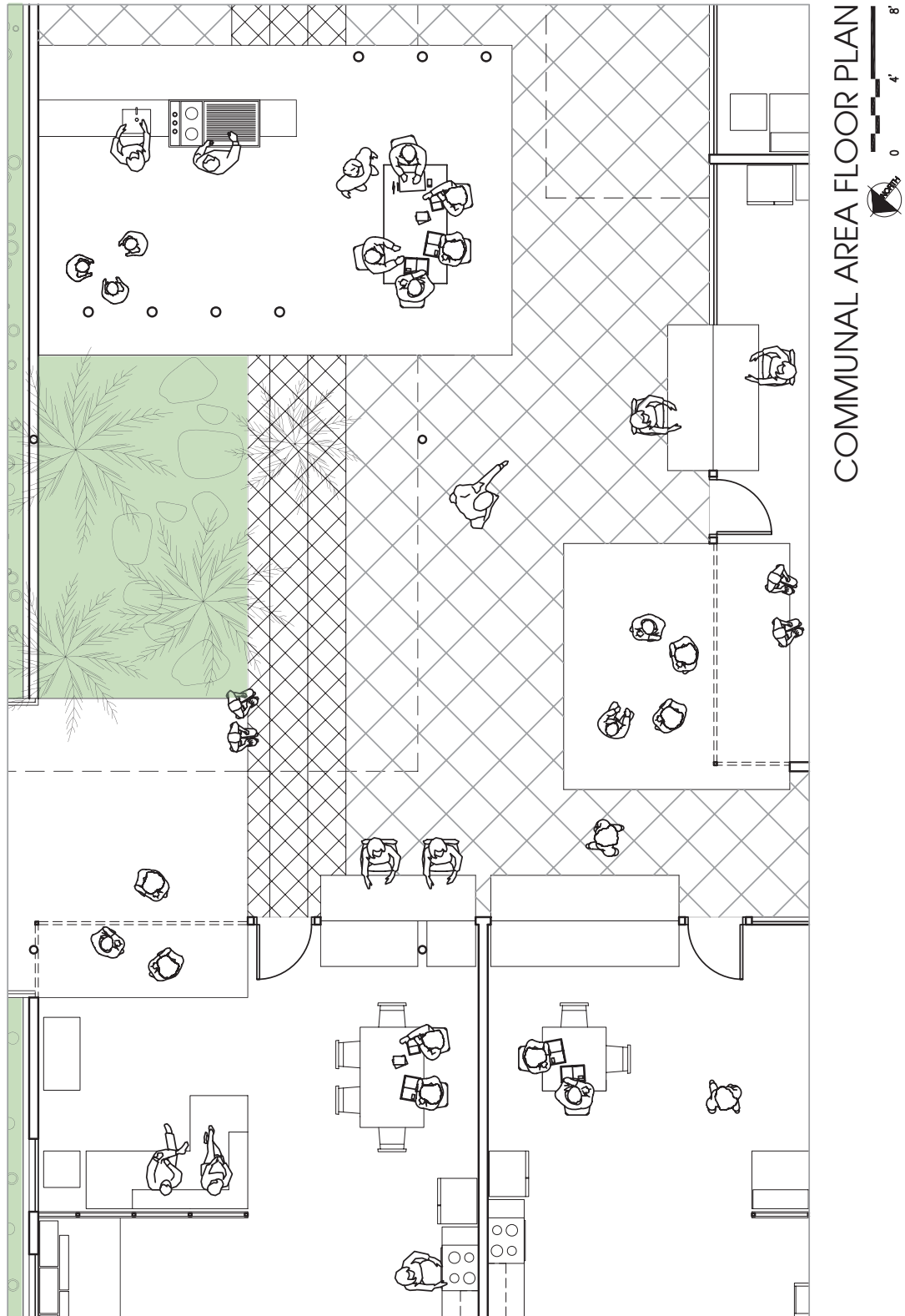


Figure 124

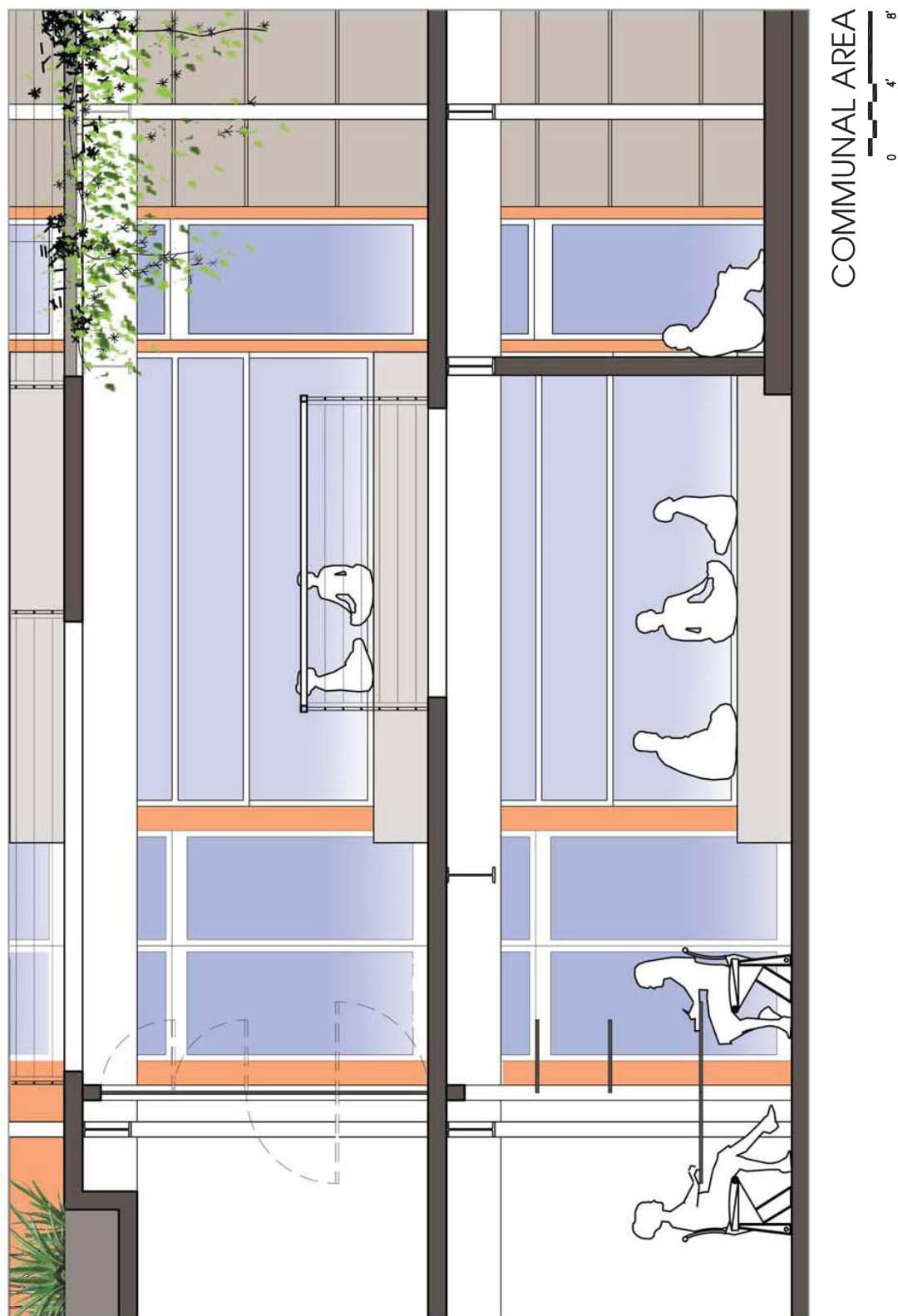


Figure 125



Figure 126

CONCLUSION

The Samoans were the selected cultural group for this project because of their unique Samoan “way of life” called *Fa’a Samoa*, which is a completely public and communal lifestyle. This cultural group also has significant cultural pride and they try to perpetuate their culture and lifestyle wherever they might live. Yet in Western culture, such as in Hawai’i, their culture is declining. One aspect considered paramount in contributing to their decline is the type of housing that is available. The housing in Hawai’i is designed for a Western lifestyle that is more private and individualistic than the Samoan lifestyle. Given that Western style housing is the most obtainable option in Hawai’i, it is difficult for Samoans to live the communal lifestyle they are accustomed to, which is made possible by wall-less houses and community-oriented village arrangements. The challenge of this project was to design an urban mixed-income residential development that provides a communal lifestyle while also providing the privacy and protection required when living in an urban Western environment.

The project began by exploring alternatives to existing affordable housing in Hawai’i to meet the cultural and physical needs of the large number of Samoan tenants who live in low-income housing. The design theories, Defensible Space and Community of Interest, by Oscar Newman were presented and utilized for case study analysis since they specifically address design for low-income developments and communities of shared interests. A review of the various government housing programs determined that the most appropriate for this project is the Section 8 voucher assistance program. With this program a private developer builds a residential development, of which a portion of the tenants will receive rental assistance and tenants choose the housing that best meets their needs. This approach allows a development to be designed with a particular cultural group in mind, such as the Samoans, because the government does not fund it. It provides the opportunity for the Samoans or anyone else who prefers a communal lifestyle to select this unique housing option that is best suited for their way of life. Again, this project is not exclusive to Samoans and does not discriminate against non-Samoans. Many Pacific Islander cultures share common lifestyle traits with the Samoans and anyone interested in communal living may live in the development.

A requirement by HUD limits the number of units receiving project-based voucher assistance to 25 percent in a multifamily development, which changed the direction of the project from low-income housing to a mixed-income housing. The change to a mixed-income development suits the project better because a mixed-income communal living arrangement reinforces the notion of helping a neighbor in times of need by teaching them the tools for success. Samoans, as a cultural group, are known for their hospitality and willingness to help one another as their society's success is based completely on collaboration. Therefore, the intent is that the design of the housing project promotes a lifestyle of community interaction and community responsibility.

Although the project intent shifted, components of Newman's design theories remain appropriate to the design. The location of the project is in a low-income neighborhood and crime is prevalent. Security is a concern that is addressed in the project design. Low-income tenants often do not have the choice of neighborhoods they live in but middle- and high-income tenants do have a choice. Therefore, it was important to add amenities to the design to attract higher-income tenants who may not otherwise desire to live in a neighborhood with security risks. It is not to say that low-income tenants do not deserve the same level of security, but providing additional security costs more money and raises rental costs. As a result it is not included in low-income housing or, if it is included, it prices the low-income tenants out of those better-secured complexes. The increased costs of providing additional security amenities such as secured parking and shared secured entries in this complex will be offset by the Section 8 rental subsidies. As a result, secure housing will be an option for the low-income families who desire to live in a communal environment.

The communal lifestyle is emphasized through a courtyard building design. Transparency throughout the development provides visual and physical connection encouraging constant social interaction. The setting is similar to a performance at a theater. Those in the courtyard are the performers viewed by the audiences within the residential units. The opposite is also true because the units are also within view from the central courtyard putting everyone in the complex on display at all times. This high level of exposure directly impacts the residents by influencing their social behavior. By design social interaction and collaboration are cultivated, creating the foundation of a communal lifestyle that is the Samoan way of life.

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